

R E P O R T

ON THE

FACTORY SYSTEM OF THE UNITED STATES.

BY

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LETTER OF TRANSMITTAL.

BOSTON, MASS., *November 25, 1882.*

Hon. C. W. SEATON,
Superintendent of Census.

SIR: I have the honor to transmit herewith a report upon the factory system of the United States. In accordance with the original plan approved by your predecessor, I have considered briefly the history of the system, not only as to its institution and growth in this country, but as to its origin and growth in Great Britain.

I have endeavored, as far as possible, to present illustrations of the results, benefits, advantages, and disadvantages of the system, drawn from personal observations in the principal factory towns of Europe during the summer of 1881.

While many statements made in this report cannot be given in tabular form, they are, as a rule, the results of careful investigation, and should be accepted in their text form as statistical matter.

I wish to thank you, as well as your predecessor, for the very generous support you have given me in conducting the investigation intrusted to me.

I desire also to express my obligations to Alexander Redgrave, esq., C. B., chief factory inspector of Great Britain, and Messrs. Coles, of Manchester, and Henderson, of Glasgow, superintendents of inspectors of factories, for their very valuable personal services in securing for me every facility for the examination of British mills.

Respectfully, yours,

CARROLL D. WRIGHT,
Special Agent.

THE FACTORY SYSTEM OF THE UNITED STATES.

During the years immediately preceding the independence of the colonies, and while the important events which led to their consolidation into one nation were transpiring, the factory system was being developed in England as a new industrial system which was to influence the growth and development and civilization of the new as well as of the old nation. Nor was the independence of the colonies without its direct influence in enabling the manufacturers of England successfully to establish the system; indeed, the loss of the colonies was a potent factor in the firm establishment of the factory system in England. So the early and English history of the system is as legitimate in this report as the account of its planting and growth in the United States.

THE ORIGIN OF THE FACTORY SYSTEM.

The influences which led to the institution of the factory system were almost as diverse in their nature as the ramifications of the system itself. These influences are clearly defined, although some of them have never been recognized in the connection in which I place them; their power, however, not only abstractly but concretely, is fully recognizable in the origin of the system, which is of comparatively recent date, and is entirely the result of the influences existing or coming into existence during the last half of the eighteenth century. These influences were both direct and subtle in their character, but all important in their place and combination. As a great fact the system originated in no preconceived plan; on the contrary, it was formed and shaped by the inevitable force of circumstances. Those who were called the fathers of the system were men of great intelligence and enterprise. (a)

In its origin the factory system was applied to the textile trades of England, and indeed it did not till recent years embrace other industries; so that the history of the system becomes the history of the textile industries.

A factory is an establishment where several workmen are collected for the purpose of obtaining greater and cheaper conveniences for labor than they could procure individually at their homes; for producing results by their combined efforts which they could not accomplish separately; and for preventing the loss occasioned by carrying articles from place to place during the several processes necessary to complete their manufacture. The principle of a factory is that each laborer, working separately, is controlled by some associating principle which directs his producing powers to effect a common result, which it is the object of all collectively to attain. Factories are therefore the legitimate outgrowth of the universal tendency to association which is inherent in our nature, and by the development of which all industrial success has been gained; and from this principle springs the necessity for subdivision of labor, without which the factory system would have met with but feeble growth. The more the principle of association appears prominent in any species of production the more rigidly does it become entitled to the name of factory and the more generally does it receive the name in common parlance.

It is entirely unnecessary to dwell upon the advantages that have resulted from the division of labor, but in considering the definition of the factory system it must be borne in mind that the minute subdivision of labor requires an equally extensive power of combination to unite the several parts so that their aggregate shall produce one harmonious result. The type-founder is never allowed to forget that he is working for the compositor; the compositor has constant reference to the pressman; the pressman to the folder; and the folder to the binder. The man who cuts the wire for pins fits them for the operative who points them, and he turns them out of hand ready for the person who heads them.

The factory is, therefore, in broad terms, an association of separate occupations conducted in one establishment, in order to facilitate the combination of the processes into which most branches of manufactures are divided. (b)

The first force which tended to create this system was that of invention, and the stimulus to this grew out of the difficulty which the weavers experienced in obtaining a sufficient supply of yarn to keep their looms in operation.

Prior to 1767 all yarn used in the manufacture of textiles of all kinds was spun in single threads, by the fingers of the spinsters, upon the domestic spinning-wheel. For a generation prior to this period various attempts had been made to increase the product. The machines in use for weaving as well as for spinning were nearly as simple as those in use in India.

The processes of spinning and of weaving were generally performed in the same cottage, the weaver continually pressing upon the spinner for a supply of weft or warp, but the weaver's own family could not respond with a sufficient quantity, and he had much difficulty in collecting it from neighboring spinsters. In consequence much time was wasted, and the weaver often subjected to high demands for the yarn, for which, as the demand exceeded the supply, the spinster could put her own price. Indeed, as Dr. Aiken, in his *History of Manchester*, has related, "the weavers, in a scarcity of spinning, have sometimes been paid less for the weft than they paid the spinner, but durst not complain, much less abate the spinner, lest their looms should be unemployed."

The cotton manufacture of England at this time, though rapidly increasing, could never have received such impetus as to have become of great national importance without the discovery of some method for producing a greater quantity and a better quality of yarn with the same expenditure of muscular labor; (a) for, while a high and sustained price for yarn would indeed have attracted new hands to the employment, such high price would of itself have tended to keep down the rising industry, by making the goods too costly for general consumption.

Invention, paradoxical as it may seem, had really aggravated the difficulty by a device for facilitating the process of weaving. I have reference to the fly-shuttle, invented, in 1738, by John Kay. By this device one man alone was enabled to weave the widest cloth, while prior to Kay's invention two persons were required. One can readily see how this increased the difficulty of obtaining a supply of yarn; for the one-thread wheel, though turning from morning till night in thousands of cottages, could not keep pace either with the weaver's shuttle or with the demand of the merchant. (b) In 1738, however, John Wyatt invented an elementary mechanical contrivance whereby a single pair of hands could spin twenty, a hundred, or, on a perfected machine, even one thousand threads. I need not occupy space with the details relating to the various inventions which culminated in a grand constellation of mechanical devices which have influenced the world in a deeper sense than any other, save printing.

The invention for spinning, already referred to, and which really embodied the method of spinning by rollers, was made by John Wyatt, of Birmingham, for which royal letters-patent were granted in 1738, in the name of Lewis Paul. The specification of this patent describes the very principle of spinning by rollers which distinguished the spinning-machine brought into use thirty years later by Sir Richard Arkwright, and which was universally adopted, and of which Sir Richard is generally supposed, even at the present day, to have been the inventor. It has been quite clearly proven, however, that Wyatt was the inventor. It is true he did not succeed in making his fortune, or even in introducing his machine into use; he lacked the pecuniary means, and could not hold out long enough to realize the success his genius merited; but, more than all, he lacked the time and attendant circumstances, with all their subtle influences, which accompanied the train of inventions a generation or so later. Wyatt's invention slumbered for thirty years, till it was either rediscovered, or, what is just as probable, till its principles came accidentally to the knowledge of Arkwright, who, previous to 1769, had been a barber at Preston. He was possessed of a keen sagacity, which enabled him to appreciate the value of his invention, and his perseverance, talent, and good fortune served him by its means to enrich himself and his country.

In every mode of spinning, whether by the rude teak-wood wheel used in India or by the present ring spinning-frame, "the ends to be accomplished are, to draw out the loose fibers of the cotton in a regular and continuous line, and, after reducing the fleecy roll to the requisite tenuity, to twist it into a thread." The roll or sliver, previously prepared by the process of carding, must be drawn out to a considerably greater fineness before it is of the proper thickness to be twisted; this is accomplished by two or more rollers, placed horizontally, revolving in contact; the sliver of cotton, being put between the first pair of rollers, is by their revolution drawn through and compressed; while still passing between these rollers the cotton is caught by another pair, immediately in front, which revolve with much greater velocity than the first, and which therefore draw out the sliver to a much greater length and degree of fineness; after passing through successive pairs of rollers the reduced sliver is attached to a spindle and fly, the rapid revolutions of which twist it into a thread and at the same time wind it upon a bobbin.

Such is the admirable contrivance by which a machine is made to do what was formerly effected by the fingers of the spinner. And this is the invention ascribed to Sir Richard Arkwright, and on which his renown for mechanical genius rests, but which was clearly described in principle, as I have related, by John Wyatt, thirty years before Arkwright knew anything of cotton-spinning. Under Wyatt's invention, a mill for spinning was built at Birmingham in 1741 or 1742, which was turned by two asses walking round an axis, and ten girls were employed in attending the work. This establishment was unsuccessful, and in 1743 was broken up. Some years later a work upon a larger scale, but under Wyatt's invention, was built upon a stream of water at Northampton; but this did not prosper, and in 1764 it passed into use in other directions.

Arkwright labored under great difficulties in perfecting his invention, and it was only through the assistance rendered him by his friend, Mr. John Smally, of Preston, a liquor merchant and painter, that he was able to carry

on his experiments. In consequence of the machinery riots at Blackburn, on account of Hargreaves' invention of the spinning-jenny, Arkwright, in 1767, went to Nottingham, whither Hargreaves had already repaired. Arkwright finally formed a copartnership with Jedediah Strutt, of Derby. The significance of this alliance, so far as America is concerned, was great indeed, as I shall show; its direct results were to terminate the pecuniary difficulties of Arkwright, and he soon made his machine practicable, and in 1769 introduced it to the public, taking letters-patent therefor.

During Arkwright's experiments James Hargreaves, a weaver of Stand-Hill, near Blackburn, invented an admirable machine called a spinning-jenny, by which one spinner could spin many threads at a time. The evidence goes to show that Hargreaves conceived his invention and began to embody it as early as 1764. Though illiterate and humble, he must be regarded as one of the greatest inventors in the cotton manufacture, and entitled, along with Arkwright, to the renown associated with the inauguration of the era of machinery. In fact, by some Mr. Hargreaves is considered to have preceded Arkwright, for the date of his invention was some years before Arkwright obtained his patent for his water-power frame for spinning. Hargreaves' machine differed so completely from Wyatt's description and from Arkwright's embodiment that there can be no doubt of its being a perfectly original invention.

Hargreaves' jenny, like Arkwright's machine, was intended to spin the roving into yarn; but it was not, like Arkwright's, capable of being applied to the preparation of the roving itself. Hargreaves is said to have conceived his idea one day when several children at play in his cottage overturned a single-thread machine while in operation; he observed that while in a horizontal position the wheel continued to revolve, and also the spindle. The idea occurred to him then that if a number of spindles were placed upright, side by side, several threads could be spun at once, all the spindles being actuated by the same wheel. He therefore constructed a frame embodying this principle, and with it, though it was rudely made, he and his family spun weft for his own weaving. It soon, however, became the subject of rumor that Hargreaves could by some unknown power spin more threads than any one else, and so his invention, instead of gaining him admiration and gratitude, excited the suspicions of the spinners, who raised an outcry that it would throw multitudes out of employment, and a mob broke into his house and destroyed not only his jenny but most of his furniture. Hargreaves was so thoroughly persecuted that he left his native county and went to Nottingham. At this place he was furnished with means, and was enabled to perfect his invention, taking out letters-patent in 1770, one year after Arkwright's patent was granted.

The machine of Arkwright was most particularly applicable to the production of warp, while the jenny-invented by Hargreaves was chiefly employed in spinning the woof or filling. For some years all the warp and woof used in the kingdom was spun on machines made from these models.

The mule spinning-machine, which Samuel Crompton invented in 1776, was a combination of the principles of the jenny and the water-frame, and entirely superseded the use of the jenny.

The machines of Hargreaves and Arkwright broke down the barrier which had so long obstructed the advance of the cotton manufacture, and the breaking down of this barrier inaugurated the factory system, which really dates from this period. Many minor improvements were made, not only in the methods of spinning, but in the processes necessary for the proper preparation of cotton for spinning; but, although I have dwelt quite at length upon the principal inventions, I need not discuss either those which followed as of course or the struggles through which all, inventors and capitalists, had to pass in their efforts to supply new and pressing demands. It is true that when this admirable series of machines was made known, and by their means yarns were produced far superior in quality to any before spun in England, as well as lower in price, a mighty impulse was given to the cotton manufacture. It was only an impulse, however, and the inventions would not have brought their fullest fruition without powerful influences which have not usually been considered in this connection, but which occupy a legitimate place in the evolution of industrial forces as the inventions themselves, which are simply the initiatory outgrowth of such evolution.

While the processes of production had become in England more efficient through the invention of spinning-machines, whereby the weavers were kept busy and allowed no rest, it was only where a stream gave force to turn a mill-wheel that the spinner or the wool worker could establish his factory, while even if this difficulty had not existed the inefficiency of distribution would have rendered useless, to a large degree, a greatly augmented production.

Mr. Green, in his *History of the English People*, speaking of the decade beginning with 1760, remarks:

The older main roads, which had lasted fairly through the middle ages, had broken down in later times before the growth of traffic and the increase of wagons and carriages. The new lines of trade lay often along mere country lanes which had never been more than horse-tracks, and to drive heavy wains through lanes like these was all but impossible. Much of the woolen trade, therefore, had to be carried on by means of long trains of pack-horses. * * * In the case of yet heavier goods, such as coal, distribution was almost impracticable, save along the greater rivers or in districts accessible from the sea. But at the time when Hargreaves and Arkwright were struggling to make their inventions available the enterprise of a duke and the ingenuity of a millwright not only solved the problem of distribution which the trade of the country was forcing upon England, and which improved cotton machinery was sure to complicate, but they paved the way by constructing canals for the greatest application of the steam-engine, which could not have played its part in establishing the factory system without means of distributing coal, and the system itself, without the steam-engine, would have been a feeble institution.

Francis, Duke of Bridgewater, was a shy, dreamy man, whom disappointment in love drove into a life of seclusion on his estates in the north. He was the possessor of collieries at Worsley whose value depended on their finding a market at the neighboring town of Manchester; and it was to bring his coal to this market that he resolved to drive a canal from the mine to the river Irwell. With singular good luck he found the means of carrying out his design in a self-taught mechanic, James Brindley. But in Brindley's mind the scheme widened far beyond the plans of the duke. Canals, as he conceived them, were no longer to serve as mere adjuncts to rivers; (a) for, as it is related of him, when under examination before a committee of the house of commons, and being jocularly asked for what he supposed rivers to have been created, he replied: "Undoubtedly to feed navigable canals."

What Brindley had discovered was in fact the water-road, a means of carrying heavy goods with the least resistance, and therefore the least cost, from the point of production to the point of sale. England at once seized on this discovery to free itself from the bondage in which it had been held.

From the year 1767, when Brindley completed his enterprise, a net-work of such water-roads was flung over the country; and before the movement had spent its force Great Britain alone was traversed in every direction by three thousand miles of navigable canals. (b)

The free and cheap distribution of coal and iron at once became an important factor, in fact the chief element in the development of the factory system, and now, for the first time in the history of civilization, a new motive power became indispensable to growth, for "what was needed to turn England into a manufacturing country was some means of transforming the force" of the sun "stored up in coal into a labor force; and it was this transformation which was brought about through the agency of steam".

Crude engines, in which steam was used as a means of draining mines, had long been in use; but the power relied on was mainly that of the weight of the air pressing on a piston, beneath which a vacuum had been created by the condensation of steam. There were many obstacles to the economical use of the engine, but these were overcome by the ingenuity of James Watt, a working engineer at Glasgow.

It would seem that the spirit of invention, of new thought in many directions, was in the very air after 1760 set in. Watt, in 1765, conceived the idea that, as steam was an elastic body, it would rush into a vacuum, and if a communication were made between the cylinder and an exhausted vessel it would rush into it, and might then be condensed without cooling the cylinder.

On the breaking out of the American war the steam-engine passed beyond its use in draining mines, and was rapidly adopted for all kinds of manufacturing industry. The location of mills upon streams of water was no longer a physical necessity; they could be built and run near large towns, whose crowded population could supply their operatives. The influence of this change of location has been the cause of most of the so-called factory evils. But one more generic invention, so far as textile machinery was concerned, was needed to establish the factory system; this was the power-loom. This, however, did not come till after the close of the American war. In 1785 Dr. Edward Cartwright invented the first power-loom. This was improved upon by various inventors till 1806, when power-looms began to be used in factories. Prior to this all the yarn spun by power-machines had been woven into cloth by hand-loom weavers, and of course the introduction of the power-loom caused a repetition of the scenes of riot which followed the introduction of spinning-machines. The power-loom closed the catalogue of machines essential to the inauguration of the era of mechanical supremacy. What inventions will come during the continuance of that era cannot be predicted, for we are still at the beginning of the age of invention. The wonderful results of its first twenty years of life are sufficient to indicate something of the future.

When the period of which I have spoken, the score of years from 1765 to 1785, had closed, England possessed powers which needed only the support of the silent forces of the nation to carry her to the very highest point in industrial supremacy. It should be remembered that the inventions whose origin I have outlined were not confined in their application to one manufacture, but that they gave nearly the same facilities to the woolen, the worsted, the linen, the stocking, and the lace manufactures as to the cotton, and that they spread in time from England to the whole of Europe, to America, and to parts of Africa and Asia. These inventions, however, were the material forces, powerful indeed, as agents, in building the factory system. What were the inner, subtle, but also powerful agencies at work to render the material forces successful?

While the inventions of which I have spoken were being perfected, Adam Smith was working out his memorable *Inquiry into the Causes of the Wealth of Nations*. When he was lecturing with applause in Glasgow from the chair of moral philosophy, James Watt was selling mathematical instruments in an obscure shop within the precincts of the same university, and was working out his inquiry into the practicable methods of applying steam.

It may seem as if no two departments of human thought were more widely separated than those in which these two men were engaged. One was a region purely mental, the other purely physical. The one had reference to the laws of mind, the other to the laws of matter; and yet the work of Adam Smith and that of James Watt were inseparably connected, not only as involving analogous methods of investigation, but as showing in their result the blending and co-operation of mental and material laws. (c) Dr. Smith treated of the philosophy of trade, and by his philosophy prepared the English mind to receive for England's benefit the commercial results, not only of her inventions, but of her losses from the war with her colonies and the diversion of her slave-trade capital. Adam Smith published his work in 1776, and during the seven years of strife with this country his doctrines had taken silent and almost unobserved possession of the minds of the thinking men of England, so that at the close of the

a Green's *History of the English People*, vol. iv, p. 279.
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b *Ibid.*

c *Reign of Law*. Duke of Argyle, page 339.

war it was not difficult to turn the thoughts of manufacturers and merchants to the industrial possibilities of Great Britain. With the close of the war the industry of England was exerted to its fullest power in the task of supplying the world with cotton goods. Her pauper children were made to contribute to her industrial greatness; she flooded America with cheap goods, demoralized our merchants and our people, and actually drove them into a fever for foreign goods. The capital of England, released by the war, was free to engage in industrial and commercial enterprises, and well did the business brains of the country apply the doctrines of the Glasgow economist. But a stronger power than war or the pauperism of agricultural districts, from which the factories were largely supplied with cheap labor, was added to the combination of forces essential to the establishment of a new industrial order. This new influence took the shape of a great moral and religious power, which seemed to roll without obstacle over the land, changing the politics of the country and changing the directions of the employment of active capital.

The religious revival work of the Wesleys brought a nobler result than mere religious enthusiasm. A philanthropic impulse grew out of the Wesleyan impulse. The writings and the personal example of Hannah More drew the sympathy of England to the poverty and crime of agricultural laborers. A passionate impulse of human sympathy with the wronged and the oppressed grew with amazing strength, and under its influence the crusade against the iniquity of the slave-trade was sustained. So each and all who sought the elevation of the oppressed aimed a shot at the slave-trade, either directly or indirectly, for all helped to create the public sentiment which insisted upon its abolition.

Half the wealth of Liverpool was drawn from the traffic of its merchants in human flesh. * * * As the spirit of humanity told upon the people, apathy disappeared. Philanthropy allied itself with the Wesleyan movement in an attack on the slave-trade. (a)

The first assaults were repulsed by the opposition of the merchants, who argued that the abolition of the trade meant their ruin. But the movement gathered strength from year to year, and the traffic was suppressed; the vast amount of capital employed in it was forced into new channels, and naturally into commercial and industrial enterprises.

The philosophical bearing of these events in their relation to the establishment of the factory system cannot be denied. To be sure, invention alone would in time have succeeded in instituting the new system, but not for generations upon so enduring a basis. It required all the forces I have considered—physical, mental, commercial, and philanthropic—working in separate yet convergent lines, to lay the foundation of an entirely new system of manufactures; and these forces, coming into existence during the twenty years following the success of the efforts of Hargreaves and Arkwright, and extending in their wonderful influences over the earth wherever civilization has a foothold, constitute that period one of the most remarkable since the Christian era. In fact, no generation since has so completely stamped itself upon the affairs of the world.

England, at the close of the Revolution, held, as she supposed, the key to the industrial world of cotton manufacture; certainly she held the machinery, without which such manufacture could not be carried on in competition with her own mills. Parliament passed stringent laws prohibiting the exportation of machines, plans, and models of machines. Her policy began to shape itself with regard to trade outside the island, and that policy was to buy as little as possible and sell to everybody. England possessed all the raw material for a large list of products; cotton alone was wanting, but this she expected to receive from India. The American colonies she had destined for her food-raising department, and for an outlet, under her own control, for her surplus manufactures. This had been her expressed policy before the war, and this policy had stimulated her to the long-continued strife. By 14 Geo. III, c. 71, it was enacted that if any person exports any tools or utensils as are commonly used in the cotton or linen manufactures, or other goods wherein cotton or linen is used, or any parts of such tools or utensils, he shall not only forfeit the same, but also £200. Even the possession of such implements, with a view to exportation, made them liable to seizure and the possessor to arrest. (b) This law was passed in 1774, and related to the inventions of Arkwright and Hargreaves. This legislation on the part of England was contemporaneous with the non-importation resolutions of the colonies, nearly all of which, prior to the Revolution, took active steps to encourage manufactures.

ORIGIN OF THE FACTORY SYSTEM IN AMERICA.

At the time of the agitation of their independence the desire to plant the mechanic arts in this country became almost a passion—certainly a feature of the patriotism of the day. Hon. Edward Everett, in an address on American manufactures, in New York, in 1831, stated:

The first measures of the patriots aimed to establish their independence on the basis of the productive industry and laborious arts of the country. They began with a non-importation agreement nearly two years before the Declaration of Independence. That agreement, * * * with the exception of the Address to the People of America and Great Britain, was the only positive act of the first Congress.

In this country, as well as in England, the germ of the textile factory existed in the fulling- and carding-mills; the former, dating earlier, being the mills for finishing the coarse cloths woven by hand in the homes of our ancestors; in the latter, the carding-mill, the wool was prepared for the hand-wheel. At the close of the Revolution the domestic system of manufactures prevailed throughout the states.

a Green.

b Pope's *Laws of the Customs*.

The first attempts to secure the spinning machinery which had come into use in England were made in Philadelphia early in the year 1775, when probably the first spinning-jenny ever seen in America was exhibited in that city. During the war the manufacturers of Philadelphia extended their enterprises, and even built and run mills which writers often call factories, but they can hardly be classed under that term. Similar efforts, all preliminary to the establishment of the factory system, were made in Worcester, Massachusetts, in 1780. In 1781 the British parliament, determined that the textile machinery by which the manufactures of England were being rapidly extended, and which the continental producers were anxious to secure, should not be used by the people of America, re-enacted and enlarged the scope of the statute of 1774 against its exportation. By 21 Geo. III, c. 37, it was provided that any person who packed or put on board, or caused to be brought to any place in order to be put on any vessel for exportation, any machine, engine, tool, press, paper, utensil, or implement, or any part thereof, which now is or hereafter may be used in the woolen, cotton, linen, or silk manufacture of the kingdom, or goods wherein wool, cotton, linen, or silk are used, or any model or plan of such machinery, tool, engine, press, utensil, or implement, should forfeit every such machine, etc., and all goods packed therewith, and £200, and suffer imprisonment for one year. In 1782 a law was enacted which prohibited, under penalty of £500, the exportation or the attempt to export "blocks, plates, engines, tools, or utensils used in or which are proper for the preparing or finishing of the calico, cotton, muslin, or linen printing manufactures, or any part thereof". The same act prohibited the transportation of tools employed in the iron and steel manufactures. Acts were also passed interdicting the emigration of artificers. All these laws were enforced with great vigilance, and were of course serious obstacles to the institution of the new system of manufacture in America.

The manufacturers of this country were thus compelled either to smuggle or to invent their machinery. Both methods were practiced until most of the secrets of the manufacture of common goods were made available here.

The planting of the mechanic arts in this country became a necessity during the war of the Revolution, and afterward the spirit of American enterprise demanded that New England and the middle states should utilize the water-powers which they possessed, and by such utilization supply the people with home manufactures.

When the people of the states saw that the treaty of Paris had not brought industrial independence, a new form of expression of patriotism took the place of military service; and associations were formed the object of which was to discourage the use of British goods, and as the Articles of Confederation did not provide for the regulation of commerce the legislatures of the states were besought to protect home manufactures. The Constitution of 1789 remedied the defects of the articles in this respect, and gave Congress the power to legislate on commercial affairs. The Constitution was really the outcome of the industrial necessities of the people, because it was on account of the difficulties and the irritations growing out of the various commercial regulations of the individual states that a convention of commissioners from the various states was held in Annapolis in September, 1786, which convention recommended the one that framed the new or present Constitution of the United States.

Of course those industries whose products were called for by the necessities of the war were greatly stimulated, but with peace came reaction and the flooding of our markets with foreign goods.

The second act under the Constitution was passed July 4, 1789, with this preamble:

Whereas it is necessary for the support of the government, for the discharge of the debts of the United States, and for the encouragement and the protection of manufactures, that duties be laid on goods, wares, and merchandise imported:

Be it enacted, etc.

Patriotism and statute law thus paved the way for the importation of the factory system of industry, and so its institution here, as well as in England, was the result of both moral and economical forces.

As early as 1786, before the adoption of the Constitution of the United States, the legislature of Massachusetts offered encouragement for the introduction of machinery for carding and spinning by granting to Robert and Alexander Barr the sum of £200 to enable them to complete a roping-machine, and also to "construct such other machines as are necessary for the purpose of carding, roping, and spinning of sheep's wool, as well as of cotton wool". The next year these parties were granted six tickets in a land-lottery. Others engaged in the invention, and construction of cotton-spinning machines at Bridgewater, being associated with the Barrs, who came to Massachusetts from Scotland at the invitation of Hon. Hugh Orr, of Bridgewater, and for the purpose of constructing spinning-machines. There is no doubt that the machinery built by them was the first in this country which included the Arkwright devices; the first factory, however, in America expressly for the manufacture of cotton goods was erected at Beverly, Massachusetts, in 1787. This enterprise was aided by the legislature. The factory at Beverly was built of brick, was driven by horse-power, and was continued in operation for several years, but its career as a cotton-mill was brief, and no great success attended it. About the same time other attempts had been made in Rhode Island, New York, and Pennsylvania, but principally in Rhode Island and that part of Massachusetts contiguous to Rhode Island.

The honor of the introduction of power-spinning machines in this country, and of their early use here, is shared by these last-named states; for while Massachusetts claims to have made the first experiments in embodying the principles of Arkwright's inventions and the first cotton factory in America, Rhode Island claims the first factory in which perfected machinery, made after the English models, was practically employed. This was the factory.

built by Samuel Slater, in 1790, in Pawtucket, Rhode Island, which still stands in the rear of Mill street in that city, and the hum of cotton machinery can still be heard within its walls. Previous to 1790 the common jenny and stock-card had been in operation upon a small scale in various parts of the United States, but principally in Pennsylvania, New York, Rhode Island, and Massachusetts; but every endeavor to introduce the system of spinning known as water-frame spinning, or Arkwright's method, had failed. The introduction of this system was the work of Slater, whom President Jackson designated "The father of American manufactures". Samuel Slater was born in Belper, Derbyshire, England, June 9, 1768, and at fourteen years of age was bound as an apprentice to Jedediah Strutt, esq., a manufacturer of cotton machinery at Milford, near Belper. Strutt was for several years a partner of Sir Richard Arkwright in the cotton-spinning business; so young Slater had every opportunity to master the details of the construction of the cotton machinery then in use in England, for during the last four or five years of his apprenticeship he served as general overseer, not only in making machinery, but in the manufacturing department of Strutt's factory. Near the close of his term his attention was drawn to the wants of the states by accidentally seeing a notice in an American paper of the efforts various states were making by way of offering bounties to parties for the production of cotton machinery. Slater knew well that under the laws of England he could carry neither machines nor models or plans of machines out of the country; so, after completing his full time with Mr. Strutt, he continued some time longer with him, superintending some new works Mr. Strutt was erecting. This he did that he might so perfect his knowledge of the business in every department that he could construct machinery from memory, without taking plans, models, or specifications. With this knowledge Slater embarked at London September 13, 1789, for New York, where he landed November 17, and at once sought parties interested in cotton manufactures. Finding the works of the New York Manufacturing Company, to whom he was introduced, unsatisfactory, he corresponded with Messrs. Brown and Almy, of Providence, who owned some crude spinning-machines, some of which came from the factory at Beverly, Massachusetts. In January, 1790, Slater made arrangements with Brown and Almy to construct machinery on the English plan. This he did at Pawtucket, making the machinery principally with his own hands, and on the 20th of December, 1790, he started three cards, drawing and roving, together with seventy-two spindles, working entirely on the Arkwright plan, and being the first of the kind ever operated in America.

It is generally supposed that the course of the progress of the manufacture of cotton goods in this country is quite clearly marked, yet a careful study of the subject seems rather to dissipate the line of advancement instead of bringing it into clearer view. Dr. Leander Bishop, in his exceedingly valuable work, *A History of American Manufactures*, in speaking of the clothing manufacture, states that a correspondent of the *American Museum*, writing from Charleston, South Carolina, in July, 1790, refers to a gentleman who—

had completed and had in operation on the High Hills of the Santee, near Statesburg, ginning, carding, and other machines driven by water, and also spinning machines, with eighty-four spindles each, with every necessary article for manufacturing cotton. If this information be correct, the attempt to manufacture by machinery the cotton which they were then beginning to cultivate extensively was nearly as early as those of the northern states.

Certainly this bit of history of attempts in southern states, of the efforts of Samuel Wetherell, of Philadelphia, of the Beverly Company, in Massachusetts, of Moses Brown, at Providence, Rhode Island, all before Slater's coming, to introduce spinning by power, illustrates the difficulty of locating the origin of an institution when a country of such proportions as our own constitutes the field. It is safe, historically, to start with Slater as the first to erect cotton machinery on the English plan, and to give the factory system 1790 as its birthday.

The progress of the system has been uninterrupted from 1790, save by temporary causes and for brief periods; but these interruptions only gave an increased impetus to its growth.

In 1792, by the invention of the cotton-gin, an American, Eli Whitney, of Massachusetts, residing temporarily in Georgia, contributed as much toward the growth of the factory system as England had contributed by the splendid series of inventions which made the cotton-manufacturing machinery of the system.

The alarm of the people at the increase in the demand for foreign goods took shape again in 1794 and the decade following, and, by patriotic appeals to all classes, societies and clubs were formed pledged to wear only home-made goods. Congress was called upon to restrict importations. The result of all these efforts and influences stimulated the manufacture of cotton and other textiles. The water privileges of New England and the middle states offered to enterprising men the inducement to build factories for the spinning of yarn for the household manufacture of cloth. At the close of 1809, according to a report made by Mr. Albert Gallatin, Secretary of the Treasury in 1810, eighty-seven cotton factories had been erected in the United States, which, when in operation, would employ 80,000 spindles.

The perfect factory, the scientific arrangement of parts for the successive processes necessary for the manipulation of the raw material till it came out finished goods, had not yet been constructed. As I have said, the power-loom did not come into use in England till about 1806, while in this country it was not used at all till after the war of 1812. In England even it had not been used in the same factory with the spinning-machines. In fact, for many years the custom of spinning the yarn under one management and weaving the cloth under another has prevailed in England.

In 1811, Mr. Francis C. Lowell, of Boston, visited England, and spent much time in inspecting cotton factories, for the purpose of obtaining all possible information relative to cotton manufacture, with a view to the introduction of improved machinery in the United States. The power-loom was being introduced in Great Britain at this time, but its construction was kept very secret, and public opinion was not very favorable to its success. Mr. Lowell learned all he could regarding the new machine, and determined to perfect it himself. He returned to the states in 1814, and at once began his experiments on Broad street, Boston. His first move was to secure the skill of Paul Moody, of Amesbury, Massachusetts, a well-known mechanic. By and through the encouragement of Mr. Nathan Appleton, a company had been organized by Mr. Lowell and Mr. Patrick T. Jackson, with Mr. Appleton as one of its directors, for the establishment of a cotton manufactory, to be located in Waltham, Massachusetts, on a water privilege they had purchased. This factory was completed in the autumn of 1814, and in it was placed the loom perfected by Mr. Lowell, which differed much from the English looms. Mr. Lowell had neither plans nor models for his factory and looms, but in the year named the company set up a full set of machinery for weaving and spinning, there being 1,700 spindles, and this factory at Waltham was the first in the world, so far as record shows, in which all the processes involved in the manufacture of goods, from the raw material to the finished product, were carried on in one establishment by successive steps, mathematically considered, under one harmonious system. Mr. Francis C. Lowell, aided by Mr. Jackson, is unquestionably entitled to the credit of arranging this admirable system, and it is remarkable how few changes have been made in the arrangements established by him in this factory at Waltham.

So America furnished the stone which completed the industrial arch of the factory system of manufactures.

THE GROWTH OF THE FACTORY SYSTEM AS ILLUSTRATED BY THE COTTON MANUFACTURE.

After the success of the power-loom, the cotton manufacture took rapid strides, both in Europe and America. The hand-loom and the hand-weaver were rapidly displaced. Factories sprung up on all the streams of Yorkshire and Lancashire, in England, while in this country the activity of the promoters of the industry won them wealth, and won cities from barren pastures. They erected Lowell, Lawrence, Holyoke, Fall River, and many other thriving cities and towns, and now in this generation the industry is taking root upon the banks of southern streams. The progressive steps of this great trade are shown by the tables which follow. The facts for Great Britain for the year 1833 are taken from Baines' *History of Cotton Manufacture*, and have been corroborated as far as possible from other sources; they constitute the most reliable data obtainable for that period. For 1831, for the United States, we have the census returns and other sources, none of them very accurate, yet they give the best approximate figures.

It will be observed that the number of cotton factories in this country was 801 in 1831, 1,240 in 1840, 1,074 in 1850, and that since 1850 there has been a constant decrease in the number of establishments. This is the result of consolidation and the establishment of large works, the smaller factories being closed or united with the large ones. (a) While the number of factories has decreased, the consumption of cotton and the production of goods has steadily increased. Perhaps the best gauge of the progress of the industry is to be found in the quantity of cotton consumed per capita of the population. In Great Britain, in 1831, the home consumption of cotton per capita (excluding the proportion for the export trade) was 6.62 pounds; in 1881 it was 7.75 pounds; in the United States, for 1830, it was 5.9 pounds; in 1880 it was 13.91 pounds. That is, the clothing of the people of this country in 1830 required 5.9 pounds of cotton per annum, and now it requires 13.91 pounds.

If we take the per capita consumption of the factories, including exports and home consumption, the proportion for Great Britain in 1831 was 16.15 pounds; in 1881, 40.8 pounds; for the United States, in 1831, it was, on this basis, 6.1 pounds; in 1880 it had risen to 14.96 pounds. The ratios given as to spindles to persons employed, capital to spindles, product to spindles, capital to product, product to persons employed, while in some sense fallacious, and more valuable to the expert than to the general reader, yet are true for the time given and the existing circumstances, and certainly show the change of circumstances. The ratio of consumption to spindles is of course influenced largely by the number of the yarn produced, and many of the British mills spin finer numbers than do the mills of this country; but whatever may be the cause, the ratio stands as given, and shows that the attendant circumstances, either of machinery or kind of product, or of some other matter, vary as to the two countries.

^a The number of cotton factories for 1880 should be increased by the number of mills engaged in working raw cotton, waste, or cotton yarn into hosiery, webbing, tapes, fancy fabrics, or mixed goods, or other fabrics which are not sold as specific manufactures of cotton or of wool; some of these work both fibers, but belong more in the class of cotton manufactures than in any other. These establishments, 249 in all, in 1880, have, without doubt, been included in the list of cotton-mills heretofore; so that now the total number, to correspond with the past, should be 1,005 cotton factories in the United States in 1880.

THE FACTORY SYSTEM OF THE UNITED STATES.

The following table shows the condition of the cotton manufactures of Great Britain and the United States in the years named:

Countries and years.	Number of establishments.	Capital invested.	Number of spinning spindles.	Number of looms.	Number of employes, including children.	Value of product.	Pounds of cotton consumed.
Great Britain { 1833	1, 151	\$170, 000, 000	9, 333, 000	100, 000	237, 000	\$156, 663, 465	262, 700, 000
{ 1878	2, 671	374, 720, 500	30, 527, 920	514, 911	482, 003	474, 916, 368	1, 439, 393, 000
United States { 1831	801	40, 612, 984	1, 246, 703	33, 433	57, 406	.....	77, 457, 316
{ 1880	756	208, 280, 346	10, 653, 435	225, 759	172, 544	102, 000, 110	750, 343, 981

The following table shows the condition of the cotton-spinning and weaving industry of Great Britain and the United States in the years named:

Countries and years.	Ratio of spindles to persons employed.	Ratio of capital to spindles.	Ratio of product to spindles.	Ratio of capital to product.	Ratio of product to persons employed.	Years.	Total annual consumption of cotton.	Total average consumption of cotton per year per capita of total population.	Average consumption of cotton (exclusive of exports) per capita of total population.
							<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Great Britain { 1833	39 to 1	\$18 21 to 1	\$16 79 to 1	\$1 00 to \$0 92	\$661 15 to 1	1831	262, 700, 000	16. 15	6. 62
{ 1878	32 to 1	9 48 to 1	12 01 to 1	1 00 to 1 27	983 46 to 1	1881	1, 439, 393, 000	40. 80	7. 75
United States { 1831	23 to 1	32 58 to 1	.....	.....	.....	1830	77, 457, 316	6. 10	5. 90
{ 1880	62 to 1	19 55 to 1	18 03 to 1	1 00 to 0 02	1, 113 23 to 1	1880	750, 343, 981	14. 06	13. 92

COTTON INDUSTRY OF THE UNITED STATES: 1831-1880—NUMBER

States and Territories.	NUMBER OF ESTABLISHMENTS.					NUMBER OF SPINDLES.					NUMBER OF LOOMS.				
	1831.	1850.	1860.	1870.	1880.	1831.	1850.	1860.	1870.	1880.	1831.	1850.	1860.	1870.	1880.
The United States.....	801	1,094	1,091	956	756	1,246,703	.....	5,235,727	7,132,415	10,653,435	33,433	.....	126,313	157,810	225,769
NEW ENGLAND STATES.															
1 Maine.....	8	12	19	23	24	6,500	.....	281,056	450,772	695,924	.91	.....	6,877	9,902	15,971
2 New Hampshire.....	40	44	44	36	36	113,776	.....	636,788	740,843	944,053	3,530	.....	17,336	19,091	24,209
3 Vermont.....	17	9	8	8	7	12,392	.....	17,000	28,708	55,081	352	.....	362	028	1,180
4 Massachusetts.....	253	213	217	191	175	330,777	.....	1,073,498	2,619,541	4,236,084	8,981	.....	42,779	55,343	65,321
5 Rhode Island.....	113	158	153	139	115	235,753	.....	814,554	1,043,242	1,764,569	5,773	.....	17,315	18,075	29,669
6 Connecticut.....	94	128	129	111	82	115,528	.....	435,466	597,142	936,376	2,609	.....	8,675	11,943	18,201
Total.....	531	564	570	508	439	823,726	.....	3,858,962	5,498,308	8,032,087	21,336	.....	99,344	114,982	154,701
MIDDLE STATES.															
7 New York.....	112	86	79	81	36	157,316	.....	343,584	492,573	561,058	3,653	.....	7,885	17,218	12,403
8 New Jersey.....	51	21	44	27	17	62,979	.....	123,548	200,580	232,221	815	.....	1,507	2,176	3,189
9 Pennsylvania.....	67	208	185	138	59	120,810	.....	476,979	434,246	425,391	6,301	.....	12,994	12,862	8,433
10 Delaware.....	10	12	11	6	8	24,806	.....	38,974	20,534	46,188	235	.....	986	771	822
11 District of Columbia.....		1	1				.....	2,560				.....	83		
12 Maryland.....	23	24	20	22	19	47,222	.....	51,835	89,112	125,706	1,002	.....	1,070	1,947	2,425
Total.....	263	352	340	274	139	413,133	.....	1,042,480	1,246,045	1,391,164	12,006	.....	25,185	34,974	27,313
SOUTHERN STATES.															
13 Virginia.....	7	27	16	11	8	9,844	.....	49,440	77,116	44,340	91	.....	2,160	1,310	1,322
14 North Carolina.....		28	30	33	49		.....	41,884	39,897	92,385		.....	761	618	1,700
15 South Carolina.....		18	17	12	14		.....	30,890	34,940	82,334		.....	525	745	1,670
16 Georgia.....		35	23	34	40		.....	85,186	85,002	193,056		.....	2,041	1,887	4,493
17 Florida.....			1				.....	1,800		816		.....	20		
18 Alabama.....		12	14	13	16		.....	35,740	28,046	49,432		.....	623	632	863
19 Mississippi.....		2	4	5	8		.....	6,344	3,526	18,568		.....	90	152	644
20 Louisiana.....			2	4	2		.....	6,725	13,084	6,096		.....	150	292	120
21 Texas.....			1	4	2		.....	2,700	8,878	2,648		.....	100	235	71
22 Kentucky.....		8	6	5	3		.....	8,192	7,734	9,022		.....	76	72	73
23 Tennessee.....		33	30	28	16		.....	29,850	27,923	35,730		.....	243	313	313
24 Arkansas.....		3	2	2	2		.....		1,125	2,015		.....			28
Total.....	7	166	165	151	161	9,844	.....	298,551	327,871	542,048	91	.....	6,789	6,250	11,898
WESTERN STATES.															
25 Ohio.....		8	8	7	4		.....	19,064	23,240	13,323		.....	540	208	42
26 Indiana.....		2	2	4	4		.....	11,000	17,300	33,396		.....	375	448	776
27 Iowa.....				1			.....					.....
28 Illinois.....			3	5	2		.....		1,856	4,800		.....		16	24
29 Missouri.....		2	2	3	3		.....	5,000	16,715	19,312		.....	80	415	431
30 Michigan.....					1		.....			5,100		.....			131
31 Wisconsin.....					1		.....			10,000		.....			400
32 Minnesota.....					1		.....			1,703		.....			24
33 Utah territory.....			1	3	1		.....	70	1,020	432		.....		11	14
Total.....		12	10	23	17		.....	35,734	60,191	88,136		.....	995	1,098	1,842

OF ESTABLISHMENTS, SPINDLES, LOOMS, AND EMPLOYÉS.

WHOLE NUMBER OF EMPLOYÉS.					NUMBER OF MALE EMPLOYÉS.					NUMBER OF FEMALE EMPLOYÉS.					NUMBER OF YOUTH AND CHILDREN.				
1831.	1850.	1860.	1870.	1880.	1831.	1850.	1860.	1870.	1880.	1831.	1850.	1860.	1870.	1880.	1831.	1850.	1860.	1870.	1880.
62,208	92,286	122,028	135,369	172,544	13,500	33,150	40,850	42,700	59,085	38,027	59,136	75,169	69,637	84,539	4,601	.....	.....	22,042	28,320
289	3,739	6,764	9,439	11,759	84	780	1,828	2,006	3,858	205	2,959	4,936	6,246	6,481	.....	.....	.....	587	1,420
5,025	12,122	12,730	12,542	16,395	875	2,911	3,829	3,752	5,104	4,000	0,211	8,901	7,490	0,594	60	.....	.....	1,300	1,697
484	241	879	451	721	102	94	157	125	200	368	147	222	242	350	19	.....	.....	84	171
13,349	28,780	38,451	43,512	61,246	2,065	8,298	13,091	13,604	22,180	10,078	19,437	24,760	24,065	31,406	.....	.....	.....	5,753	7,570
8,500	10,875	14,077	16,745	21,174	1,731	4,959	6,353	5,583	8,045	3,297	6,916	7,724	8,023	9,199	3,472	.....	.....	3,134	3,930
4,315	6,186	9,002	12,086	14,484	1,399	2,708	4,028	4,443	6,134	2,477	3,478	4,974	4,734	5,434	439	.....	.....	2,000	2,016
81,956	61,893	81,403	94,775	125,770	6,856	20,745	29,886	30,293	45,521	21,110	41,148	51,517	50,805	62,554	3,990	.....	.....	13,767	17,704
5,510	6,320	7,059	9,144	9,227	1,374	2,032	3,107	2,608	2,937	3,652	3,688	4,552	4,546	4,201	484	.....	.....	1,000	2,080
5,438	1,712	2,534	3,514	4,170	2,151	616	1,010	1,086	1,180	3,070	1,096	1,524	1,745	2,201	217	.....	.....	683	708
14,806	7,663	14,994	12,730	9,879	6,545	3,504	6,412	3,859	3,339	8,351	4,000	3,582	6,097	4,454	.....	.....	.....	2,774	2,080
1,373	838	1,109	726	791	697	413	520	225	237	676	425	589	286	362	.....	.....	.....	215	192
.....	144	95	.....	.....	.....	41	70	.....	.....	.....	103	25	.....	.....	.....	.....	.....	.....	102
2,617	3,022	2,687	2,800	4,042	824	1,008	1,093	688	1,226	1,793	2,014	1,594	1,452	1,877	.....	.....	.....	720	939
20,834	10,699	29,078	38,974	28,118	11,591	8,274	12,212	8,466	8,919	17,542	11,425	16,866	14,120	13,185	701	.....	.....	6,382	6,014
418	2,963	1,441	1,741	1,085	143	1,275	694	921	274	275	1,088	747	507	530	.....	.....	.....	313	281
.....	1,619	1,755	1,453	3,232	.....	442	440	258	764	.....	1,177	1,815	916	1,727	.....	.....	.....	279	741
.....	1,019	891	1,123	2,018	.....	399	342	280	661	.....	620	540	508	772	.....	.....	.....	320	585
.....	2,272	2,813	2,846	6,215	.....	873	1,131	1,147	1,853	.....	1,399	1,682	1,080	2,951	.....	.....	.....	619	1,411
.....	95	65	.....	81	.....	28	40	.....	19	.....	67	25	.....	2	.....	.....	.....	.....	17
.....	715	1,312	1,032	1,448	.....	346	543	803	384	.....	809	769	445	681	.....	.....	.....	284	433
.....	36	215	265	695	.....	10	106	78	176	.....	17	109	88	313	.....	.....	.....	99	206
.....	.....	360	246	104	.....	.....	220	123	39	.....	.....	140	57	41	.....	.....	.....	66	24
.....	.....	130	201	66	.....	.....	130	184	40	.....	.....	.....	52	10	.....	.....	.....	55	16
.....	402	246	200	348	.....	181	130	77	124	.....	221	116	71	91	.....	.....	.....	121	133
.....	891	899	800	1,015	.....	810	323	252	283	.....	581	576	463	562	.....	.....	.....	175	230
.....	31	25	17	60	.....	13	14	8	16	.....	18	11	3	17	.....	.....	.....	0	27
418	10,043	10,152	10,173	16,317	143	3,886	4,113	3,640	4,033	275	6,157	6,039	4,100	7,587	.....	.....	.....	2,343	4,097
.....	401	840	462	481	.....	132	372	216	124	.....	269	468	147	320	.....	.....	.....	99	37
.....	95	367	504	708	.....	38	177	110	193	.....	57	190	179	301	.....	.....	.....	206	124
.....	.....	.....	6	.....	.....	.....	.....	3	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	27
.....	.....	11	98	280	.....	.....	10	26	60	.....	.....	1	31	88	.....	.....	.....	41	82
.....	155	170	361	508	.....	75	85	107	120	.....	80	85	154	207	.....	.....	.....	100	181
.....	.....	.....	80	.....	.....	.....	.....	.....	84	.....	.....	.....	.....	88	.....	.....	.....	.....	14
.....	.....	.....	266	.....	.....	.....	.....	.....	61	.....	.....	.....	.....	140	.....	.....	.....	.....	56
.....	.....	.....	22	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	12	.....	.....	.....	.....	6
.....	.....	7	16	29	.....	.....	4	10	16	.....	.....	.....	.....	8	.....	.....	.....	4	5
.....	651	1,395	1,447	2,330	.....	245	648	481	612	.....	406	747	516	1,213	.....	.....	.....	460	505

COTTON INDUSTRY OF THE UNITED STATES: 1831-1880--

States and Territories.		CAPITAL INVESTED.				
		1831.	1850.	1860.	1870.	1880.
The United States.....		\$40,612,084	\$74,500,931	\$98,585,269	\$140,706,291	\$208,280,846
NEW ENGLAND STATES.						
1	Maine.....	765,000	3,329,700	6,018,325	9,830,085	15,202,078
2	New Hampshire.....	5,800,000	10,950,500	12,586,880	13,832,710	19,877,084
3	Vermont.....	295,500	202,500	271,200	670,000	936,096
4	Massachusetts.....	12,891,000	28,455,630	33,704,674	44,714,375	72,391,001
5	Rhode Island.....	6,262,340	6,675,000	10,052,200	18,886,300	28,047,331
6	Connecticut.....	2,825,000	4,219,100	6,027,000	12,710,700	20,310,500
Total.....		28,838,840	53,882,430	69,260,270	100,103,770	156,764,600
MIDDLE STATES.						
7	New York.....	3,660,500	4,176,920	5,383,479	8,511,336	11,300,638
8	New Jersey.....	2,027,844	1,483,500	1,320,550	2,762,000	3,807,750
9	Pennsylvania.....	3,758,500	4,528,925	9,203,040	12,550,720	10,391,085
10	Delaware.....	384,500	460,100	582,500	1,165,000	874,570
11	District of Columbia.....		85,000	45,000		
12	Maryland.....	2,144,000	2,236,000	2,254,500	2,734,250	4,000,816
Total.....		11,984,144	12,970,445	18,789,060	27,723,306	31,014,750
SOUTHERN STATES.						
13	Virginia.....	296,000	1,908,900	1,367,543	1,128,000	1,190,100
14	North Carolina.....		1,058,800	1,272,750	1,030,900	2,855,800
15	South Carolina.....		857,200	801,825	1,337,000	2,770,100
16	Georgia.....		1,736,156	2,126,103	3,433,265	6,348,657
17	Florida.....		80,000	30,000		11,000
18	Alabama.....		651,900	1,316,000	981,000	1,246,500
19	Mississippi.....		38,000	230,000	751,500	1,122,140
20	Louisiana.....			1,000,000	592,000	195,000
21	Texas.....			450,000	496,000	50,000
22	Kentucky.....		239,000	244,000	405,000	300,000
23	Tennessee.....		669,600	965,000	970,650	1,145,600
24	Arkansas.....		16,500	87,000	13,000	75,000
Total.....		290,000	7,256,056	9,840,221	11,088,315	17,375,897
WESTERN STATES.						
25	Ohio.....		297,000	265,000	555,700	670,000
26	Indiana.....		43,000	251,000	551,500	1,090,000
27	Iowa.....				1,500	
28	Illinois.....			4,700	151,000	240,000
29	Missouri.....		102,000	169,000	489,200	890,000
30	Michigan.....					20,000
31	Wisconsin.....					200,000
32	Minnesota.....					5,000
33	Utah territory.....			6,000	42,000	20,000
Total.....			442,000	695,700	1,790,900	3,135,000

CAPITAL INVESTED, WAGES PAID, AND COTTON CONSUMED.

WAGES OF OPERATIVES.					COTTON CONSUMED YEARLY—POUNDS.				
1831.	1850.	1860.	1870.	1880.	1831.	1850.	1860.	1870.	1880.
		\$23,940,108	\$30,044,132	\$42,040,510	77,457,316	288,558,000	422,704,975	398,308,257	750,343,981
		1,368,888	2,565,107	2,936,640	588,500	14,133,950	23,733,165	25,887,771	54,135,061
		2,833,804	3,089,853	4,200,960	7,845,000	37,361,700	51,002,324	41,469,710	76,380,409
		78,468	125,000	161,748	700,000	1,009,350	1,447,250	1,235,652	3,562,088
		7,798,476	13,589,305	15,823,571	24,871,931	100,623,150	134,012,759	130,654,040	273,718,880
		2,847,804	5,224,650	5,320,308	10,414,578	22,820,850	41,614,797	44,630,787	81,137,172
		1,743,480	3,246,783	3,632,639	6,777,209	17,767,350	31,801,011	31,747,300	52,884,171
		16,720,920	28,740,788	32,170,861	51,257,268	193,771,350	283,701,306	275,625,278	541,373,880
		1,405,292	2,626,131	1,904,755	7,661,670	17,000,100	23,945,627	24,783,351	31,650,504
		408,336	1,009,351	1,156,961	5,832,204	6,496,650	9,004,649	7,920,035	9,950,609
		2,768,340	3,496,986	2,502,688	7,111,174	10,872,900	37,496,203	32,653,318	40,311,800
		220,224	190,069	192,727	1,435,000	2,128,500	3,403,600	2,587,015	3,236,184
		19,800				432,200	294,117		
		522,780	671,933	706,129	3,008,000	10,496,250	12,880,119	12,693,647	24,166,232
		5,464,772	7,994,470	6,613,260	25,048,048	56,420,400	87,113,715	80,937,966	169,321,428
		200,850	229,750	169,789	1,152,000	3,003,250	7,544,297	4,255,393	5,087,510
		189,744	182,951	439,059		6,127,650	5,540,738	4,238,270	11,832,641
		123,300	257,080	390,844		4,468,050	3,978,001	4,756,823	15,001,005
		415,382	611,868	1,135,184		9,103,500	13,907,904	10,921,176	33,757,199
		7,872		5,000		270,000	200,000		166,250
		198,408	210,679	239,998		2,343,600	5,246,800	3,240,523	7,271,701
		36,264	61,833	133,214		193,500	693,800	580,764	2,881,853
		49,440	60,600	12,572			1,995,700	748,525	644,000
		15,600	68,211	2,466			588,000	1,077,118	110,980
		41,280	57,951	63,850		1,692,000	1,320,000	1,584,025	1,882,234
		130,180	178,156	161,071		2,884,050	4,072,710	2,872,582	4,944,279
		4,428	4,100	7,339		76,500	187,500	66,400	340,000
		1,481,704	1,929,779	2,750,986	1,152,000	35,163,000	45,786,510	34,351,195	84,528,737
		151,164	113,520	104,500		1,921,500	3,192,500	2,226,400	2,506,182
		84,888	113,200	162,829		303,750	1,813,044	2,070,318	6,364,887
			275					20,000	
		2,640	25,500	47,885			95,000	857,000	1,090,130
		30,600	120,300	97,680		972,000	990,000	2,196,600	3,082,132
				67,209					300,000
				6,400					1,541,797
									200,000
		3,420	6,300	2,100			12,000	23,500	25,788
		272,712	370,095	505,403		3,197,250	6,163,444	7,393,818	15,110,916

COTTON INDUSTRY OF THE UNITED STATES: 1831-1880—VALUE OF

States and territories.		VALUE OF ALL MATERIALS.				
		1831.	1850.	1860.	1870.	1880.
The United States			\$34,835,056	\$57,285,534	\$111,756,930	\$102,203,347
NEW ENGLAND STATES.						
1	Maine		1,573,110	3,319,335	6,746,780	7,320,152
2	New Hampshire		4,339,429	7,123,196	12,318,897	10,140,004
3	Vermont		114,415	181,030	292,269	593,297
4	Massachusetts		11,289,309	17,214,592	37,371,590	55,094,199
5	Rhode Island		3,484,579	5,799,223	13,268,315	12,291,437
6	Connecticut		2,500,062	4,028,406	8,318,651	8,020,127
	Total		23,800,904	37,670,782	78,816,481	74,290,029
MIDDLE STATES.						
7	New York		1,985,973	3,061,105	6,990,020	4,652,745
8	New Jersey		666,645	1,165,435	1,964,758	2,013,175
9	Pennsylvania		3,152,530	7,386,213	10,724,052	6,105,700
10	Delaware		312,068	570,102	704,733	527,205
11	District of Columbia		67,000	47,403		
12	Maryland		1,165,579	1,698,413	3,409,420	2,387,933
	Total		7,349,795	13,923,671	23,793,595	16,101,758
SOUTHERN STATES.						
13	Virginia		328,375	811,187	937,820	640,391
14	North Carolina		531,903	622,363	963,809	1,463,645
15	South Carolina		295,971	431,525	761,469	1,306,390
16	Georgia		900,419	1,466,375	2,594,758	4,019,073
17	Florida		30,000	23,600		18,005
18	Alabama		237,081	617,633	764,965	783,711
19	Mississippi		21,500	79,800	123,568	337,149
20	Louisiana			226,000	161,485	72,470
21	Texas			64,140	216,519	14,827
22	Kentucky		180,907	214,755	375,048	253,813
23	Tennessee		297,500	334,548	595,789	553,761
24	Arkansas		8,975	11,000	13,780	33,305
	Total		3,332,631	4,954,120	7,419,010	9,999,145
WESTERN STATES.						
25	Ohio		237,060	374,100	493,704	286,092
26	Indiana		28,220	229,925	542,875	651,434
27	Iowa				4,959	
28	Illinois			11,930	177,525	142,183
29	Missouri		86,446	110,000	481,745	376,081
30	Michigan					41,000
31	Wisconsin					194,550
32	Minnesota					30,000
33	Utah territory			6,000	7,051	3,472
	Total		351,726	781,955	1,707,850	1,725,418

MATERIALS, QUANTITY OF GOODS MANUFACTURED, AND VALUE OF PRODUCTS.

GOODS MANUFACTURED YEARLY—POUNDS.					VALUE OF PRODUCTS.				
1831.	1850.	1860.	1870.	1880.	1831.	1850.	1860.	1870.	1880.
59,514,926			349,314,592	607,204,241		\$85,501,687	\$115,681,774	\$177,489,789	\$192,090,110
525,000			23,627,155	44,392,698		2,630,616	6,235,623	11,844,181	13,319,363
7,255,000			35,003,432	63,881,540		3,861,749	13,699,004	10,099,672	17,953,403
574,500			1,051,000	2,159,108		280,300	337,450	546,510	855,804
21,301,063			113,803,458	210,160,105		21,394,401	38,004,255	59,403,153	72,289,518
9,271,481			38,503,000	60,905,642		6,495,972	12,151,191	22,049,203	22,875,111
5,612,000			27,296,710	42,285,517		4,122,952	8,011,387	14,020,334	16,069,771
44,530,103			239,284,815	432,744,610		43,785,990	70,350,000	124,950,053	143,363,030
5,297,713			22,113,630	25,640,456		5,019,323	6,076,378	11,178,211	8,266,836
1,877,418			6,723,748	8,275,260		1,269,048	2,217,728	4,015,768	4,548,275
4,207,192			32,494,857	34,457,323		5,812,126	13,650,114	17,490,080	11,021,054
1,201,500			2,437,040	2,807,969		538,439	941,703	1,000,898	871,007
						100,000	74,400		
2,224,000			10,406,677	22,324,511		2,021,396	2,973,877	4,852,808	4,682,114
14,807,823			74,266,561	93,574,519		14,780,932	29,534,700	38,597,765	29,389,280
108,000			3,456,509	4,330,476		1,446,109	1,489,971	1,435,800	1,040,062
			3,444,166	9,046,380		985,411	1,046,047	1,345,052	2,554,482
			4,125,210	12,251,272		842,440	718,050	1,529,937	2,895,760
			9,596,806	27,733,153		1,395,058	2,371,207	3,648,073	6,481,894
			134,000			49,620			25,000
			2,843,000	6,154,470		398,585	1,040,147	1,088,707	1,228,019
			529,573	2,481,022		22,000	176,328	234,445	670,093
			629,025	166,496			466,500	251,550	86,776
			887,695	99,880			60,695	374,598	21,600
			1,389,000	1,722,500		445,639	315,270	498,960	418,280
			2,881,477	3,874,616		508,481	608,122	941,542	874,717
			53,125	255,000		17,860	23,000	22,562	50,000
108,000			29,835,640	68,858,205		6,111,001	8,460,337	11,372,186	16,356,598
			1,918,000	1,603,182		594,204	723,500	681,835	637,000
			1,770,481	5,298,020		86,660	344,350	778,047	1,155,029
			18,000					7,000	
			739,000	917,634			18,987	279,000	210,861
			1,940,900	2,200,027		142,000	230,000	798,050	522,980
				250,000					70,000
				1,314,804					328,389
				160,000					40,000
			23,195	13,120			10,000	16,893	7,937
			6,427,576	12,086,847		823,764	1,326,837	2,560,735	2,981,196

The foregoing tables clearly indicate the rapid extension of the cotton manufacture to the southern states, where the cotton is at hand and labor is much cheaper than at the north. The number of spindles in the southern states was increased from 327,851 in 1870 to 542,048 in 1880, or 65+ per cent.; in New England the increase was from 5,498,408 to 8,632,087, or very nearly 57 per cent.; the middle states from 1,246,045 in 1870 to 1,391,164 in 1880, or 11+ per cent.; the western states from 60,191 in 1870 to 88,136, or 46+ per cent. In the whole country the increase was from 7,132,415 spindles in 1870 to 10,653,435 in 1880, or 49+ per cent. It will be seen that the states of Michigan, Wisconsin, and Minnesota have been added to the list of cotton manufacturing states since 1870.

On the continent of Europe the cotton manufacture has come under the rule of the new system, but not to that extent shown in Great Britain and America. Mulhall, in his *Progress of the World*, gives the number of spindles to each operative in various countries, as follows: Great Britain, 83; United States, 66; Germany, 46; France, 24; Russia, 20; Switzerland, Austria, India, 20; average, 54.

THE GENERAL APPLICATION OF THE FACTORY SYSTEM.

In nearly all industries where the terms of the definition of a factory can apply, that is, where raw material can be converted into finished goods by consecutive, harmonious processes, carried along by a central power, the factory system has been adopted. In all textile manufactures this has been the case, and the adoption of the new system in the woolen, silk, worsted, flax, and all textile trades, followed immediately upon, or was contemporaneous with, the adoption of the system in the cotton trade. Outside of the textile trades the extension of the system has been rapid indeed, until the statistics of industries of Great Britain and of the United States are simply the statistics of manufactures under the factory system. This statement is, in the main, true of Belgium, France, and Germany, although in France a very large proportion of weaving, especially of fine goods and silks, is still done by hand; in the silk industry in France, however, the power-loom is now rapidly displacing the hand-loom. Notwithstanding this general adoption of the system by the textile trades in the great manufacturing states of Europe and America, more than one-half the population of the globe is clothed with hand-made goods.

While the inauguration of the factory system in the United States was some fifteen years later than its birth in England, the extension of the system has been more rapid and its application more varied here than in any other country. As parties engaged in industries other than the manufacture of textiles saw the wonderful results of systematized labor, by its division under the scientific methods of the factory system, they gradually adopted the new order, until now it is quite safe to say that of the nearly three millions of people employed in the mechanical industries of this country at least four-fifths are working under the factory system. Some of the other remarkable instances of the application of the system are to be found in the manufacture of boots and shoes, of watches, musical instruments, clothing, agricultural implements, metallic goods generally, fire-arms, carriages and wagons, wooden goods, rubber goods, and even in the slaughtering of hogs. Most of these industries have been brought under the factory system during the past thirty years.

It is but a comparatively few years since the manufacture of boots and shoes was carried on in the little home shops which were attached to or built near the dwellings of the shoemakers. These little shops, in which a few men, rarely more than four, worked upon the bench, upon stock received from the manufacturer, cut out and ready to be put together, are closed, and the great shoe-factory takes their place. In the shoe-factory is to be seen the perfect adaptation of the manufacture of goods by successive, harmonious processes. The shoe-factory is rapidly doing away with the clogs of England and the sabots of the continent. The watch-factory presents, perhaps, the most completely scientific application of the factory system. It certainly has brought the watch within the means of the poor man. Pianos, house organs, tapestry carpets, and many other luxuries which the rich only could afford, are now enjoyed by the masses, simply as the result of the factory system of industry.

The history of the achievements of the modern system would require volumes devoted to that particular subject; the instances referred to indicate the vast extent of the application of the system; if they do not, the fact that the product of the industries of the United States has reached \$6,000,000,000 per annum will illustrate the extent of its growth. Many goods are made under a mixed system of manufacture, but the tendency is to bring all under the factory system as rapidly as possible. This tendency is accelerated by the small expense and the comparative ease with which inventions are secured and protected in this country; and this may account, in some degree, for the more general adoption of the system here than in other countries. It is quite impossible to arrive at an accurate statement as to the number of persons it would require under the old individual system to produce the goods made by the present factory workers of this country, but by careful computations in some branches of work a rough estimate of the whole would indicate that each factory-system employé in 1882 represents, on an average, at least fifty employés under the individual system. Thus it would require about one hundred and fifty million persons working under the old system to produce the goods made by the three million or so factory workers of to-day. This computation may be very wide of the truth, but any other is equally startling. This estimate will hardly be disputed when it is considered that in spinning alone eleven hundred threads are spun now at one time where one was spun under the old system. The influence of the new system upon production is shown in the appropriate section.

THE FACTORY AND THE DOMESTIC SYSTEMS OF INDUSTRY CONTRASTED—APPARENT EVILS OF THE FACTORY SYSTEM.

The rapid extension of the factory system, absorbing as it does small enterprises and crushing out the ideal system of manufacture, has not been accomplished without great social changes, affecting the morals as well as the politics and the legislation of the countries in which it has been established. No one disputes the economic advantages of the modern system; few admit that it is a moral force in the actual progress of civilization; yet the system is, and has been, an active element in the upbuilding of the character of the peoples involved in the changes inaugurated by it.

None of the systems of labor which existed prior to the present or factory system were particularly conducive to a higher civilization. Wages have been paid for services rendered since the wants of men induced one to serve another; yet the wage system is of recent origin as a system. It arose out of the feudal system of labor, and was the first fruit of the efforts of men to free themselves from villeinage. The origin of the wage system cannot be given a birthday, as can the factory system. It is true, however, that the wage system rendered the factory system possible, and they have since grown up together. The first may give way to some other method for dividing the profits of production, but the factory system, perfected, must remain, whether under a socialistic system or under whatever other political system that may exist, until disintegration is the rule in society.

The feudal and the slave systems had nothing in them from which society could draw the forces necessary to growth; on the contrary, they reflected the most depressing influences, and were actually the allies of retrogression. The laborer owned nothing; not even in the sweat of his own brow could he earn his bread. It is not so very long ago that the factory system stepped upon the bondage of labor. The one actually overtook the other, so slow was the retirement of the slave system.

The domestic system, which claims the eighteenth century almost entirely, was woven into the two systems which existed before and came after it; in fact, it has not yet disappeared. It is simple fact when we say that the factory system set aside the domestic system of industry. There is something poetic in the idea of the weaver of old England, before spinning machinery was invented, working at his loom in his cottage, with his family about him, some carding, others spinning the wool or the cotton, and writers and speakers are constantly bewailing the departure of such scenes. I am well aware that I speak against popular impression, and largely against popular sentiment, when I assert that the factory system in every respect is vastly superior as an element in civilization to the domestic system which preceded it; that the social and moral influences of the present outshine the social and moral influences of the old. The hue and cry against the prevailing system has not been entirely genuine on either side of the Atlantic. Abuses have existed, great and abominable enough, but not equal to those which have existed in the imaginations of men who would have us believe that virtue is something of the past. The condition of the workers of society has never been the ideal condition, and the worker is too often the victim of a contemptible selfishness which tempts men to commit the crime of robbing the operative of his just share in the results of his toil. That the evils of the factory system are sufficient to call out all the sentiments of justice and philanthropy which enable us to deal with wrong and oppression I do not dispute; but I claim that, with all its faults and attendant evils, it is a vast improvement upon the domestic system of industry in almost every respect, not only with reference to the individual and the family, but with reference to society and the state.

The usual mistake is to consider the factory system as the creator of evils, and not only of evils, but of evil-disposed persons. This can hardly be shown to be true, although it is true that the system congregates evils or evil-disposed persons, and thus gives the appearance of creating that which already existed. People have not yet outgrown the impression created by the reports of Sadler, before a parliamentary committee, in 1832. It is difficult, I know, to establish close comparisons of the conditions under the two systems, because they are not often found to be contemporaneous; yet sufficient evidence can be adduced, I think, from a consideration of the features of the two, to establish the truth of my assertions.

It should not be forgotten that "the term factory system, in technology, designates the combined operation of many orders of work-people * * * in tending with assiduous skill a series of productive machines continuously impelled by a central power. This definition includes such organizations as cotton-mills, flax-mills, silk- and woolen-mills", and many other works; "but it excludes those in which the mechanisms do not form a connected series, nor are dependent on one prime mover." It involves, in its strictest sense, "the idea of a vast automaton, composed of various mechanical and intellectual organs, acting in uninterrupted concert for the production of a common object, all of them being subordinated to a self-regulated moving force." (a)

So a factory becomes a scientific structure, its parts harmonious, the calculations requisite for their harmony involving the highest mathematical skill, and in the factory the operative is always the master of the machine, and never the machine the master of the operative. Under this system the work is carried on in an establishment peculiarly adapted to it, and the operative's home is separated from the workshop. Under the domestic system the home of the worker was the workshop also, and the wheels or looms disputed with the inmates for the room and the

conveniences for housework. Small, close, crowded, with bad air and bad surroundings, the hut of the domestic worker was occupied day and night by a class which has not found and cannot find its like under the factory system; for as a rule the operative of to-day occupies a home, even in the factory tenement or boarding-house, superior in every sense to the home of the domestic worker.

Under the domestic system of industry grew up that great pauper class in England which was a disgrace to civilization. It was fed by the agricultural districts more than by those devoted to manufactures. (a) It continued to grow until one-fourth of the annual budget was for the support of paupers. The evil became fixed upon the social life as one of its permanent phases. Legislation, philanthropy, charity, were utterly powerless in checking it, and it was not checked till the inventions in cotton manufactures came, since which events it has been on the decline, taking the decades together. The factory absorbed many who had been under public support; on the other hand, it drew from the peasantry, by the allurements of better wages and without any guarantees as to permanence or care as to moral responsibility; yet on the whole the state was benefited more than any class was injured.

It is not true, however, as it is often asserted, that the factory destroyed the yeomanry of England. (b) The domestic laborer's home was far from the character poetry has given it. Huddled together in what poetry calls a cottage and history a hut, the weaver's family lived and worked, without comfort, conveniences, good food, good air, and without much intelligence. Drunkenness and theft of materials made many a house the scene of crime and want and disorder. Superstition ruled and envy swayed the workers. Ignorance under the old system added to the squalor of the homes of the workers under it, even making the hut an actual den, shared in too many instances by the swine of the family. The home of the agricultural laborer was not much better; in fact, in Great Britain and France, he has to a great degree continued in his ignorance and in his degraded condition.

Sentiment has done much, as I have said, to create false impressions as to the two systems of industry. The reports of the poor-laws commissioners of England are truer exponents of conditions, and show whether the town was, during the first fifty years of the new system, staining the country or the country the town.

From the documents published by these commissioners, it appears that but for the renovating influence of her manufactures England would have been overrun with the most ignorant and depraved men to be met with where civilization has made much progress. It has been in the factory districts alone that the demoralizing agency of pauperism has been most effectually resisted and a noble spirit of industry, enterprise, and intelligence called forth. Agriculturists gave children and youths no more than half the wages paid them in factories, while they filled the workhouses with the unemployed. Under the operation of the miserable poor-laws which the domestic system fathered, the peasantry were penned up in close parishes, where they increased beyond the demand for their labor, and where the children were allowed to grow up in laziness and ignorance, which unfitted them from ever becoming industrious men and women. (c)

But in the chief manufacturing districts, while the condition of the factory children became the subject of legislation for their protection, (a) their condition was one to be envied when compared with that of the children in mining and agricultural districts.

The spasmodic nature of work under the domestic system caused much disturbance, for hand-working is always more or less discontinuous from the caprice of the operative, while much time must be lost in gathering and returning materials. For these and other obvious reasons a hand weaver could very seldom turn off in a week much more than one-half what his loom could produce if kept continuously in action during the working hours of the day, at the rate at which the weaver in his working paroxysms impelled it. The regular order maintained in the factory cures this evil of the old system, and enables the operative to know with reasonable certainty the wages he is to receive at the next pay-day. His life and habits become more orderly, and when he has left the closeness of his home-shop for the usually clean and well-lighted factory he experiences an agreeable and healthful change. It is commonly supposed that cotton factories are crowded with operatives. From the nature of things the spinning- and weaving-rooms cannot be crowded. The spinning-mules, in their advancing and retreating locomotion, must have five or six times the space for working that the actual bulk of the mechanism requires, and where the machinery stands the operative cannot stand. In the weaving-rooms there can be no crowding of persons. During the agitation for factory legislation in the early part of this century, it was remarked before a committee of the house of commons "that no part of a cotton-mill is one-tenth part as crowded, or the air in it one-tenth part as impure, as the house of commons with a moderate attendance of members". This is true to-day; the poorest factory in this country is as good a place to breathe in as representatives' hall, in the national Capitol, during sessions, or as the ordinary school-room. In this respect the new system of labor far surpasses the old.

Bad air is one of the surest influences to intemperance, and it is susceptible of proof that intemperance does not exist and has not existed to such an alarming degree under the new as under the old system; certainly the influence of bad air has not been as potent. The regularity required in mills is such as to render persons who are in the habit of getting intoxicated unfit to be employed there, and many manufacturers object to employing persons guilty of the vice. At Amiens, France, the two systems were in existence, side by side and in full force, in 1860, and are now to a considerable extent. The domestic system exists in the country around Amiens, while the factory

a See section on "Factory Legislation".

b The main causes of the destruction of this most useful element of English country life are given by Mr. Lecky, in his *History of England in the Eighteenth Century*, vol. i, p. 212.

c *Phil. of Manufactures*, pp. 354-357.

system prevails in the city itself. The country workers have had a very bad reputation. The evil of intemperance is inveterate. The people living under the old system have resisted improvement; they wish to live and die in the houses of their parents, and express no desire to leave them. The great mass of these workers were at home, even at a date as late as 1860, under a roof that was never abandoned. The investigations of Louis Reybaud prove that the homes of the factory workers were incontestably better than those of the home workers, for they were free from the incumbrances and clogging influences which existed when the means and materials for manufacture disputed with the necessities of housekeeping for a great part of the room. This difference in the homes under the two systems is also the result of circumstances easily explained. The factory workers as a rule earn more than the home workers, and by having fixed and regular hours they are kept from falling into habits of idleness. They know, to a centime, what they will have at the end of the week. Their dependence is their security. Their wages have the merit of steadiness. The condition of the home workers is precarious, as often they are out of work at times for weeks and months. Financial crises, derangements of commerce, change in fashion—all these affect them far more seriously than they do the factory people. To-morrow is never sure with the workers under the domestic system, and privation in the future is always staring them in the face. All these bad conditions are aggravated by the serious intemperance of the home workers about Amiens. There are no heads of establishments under the domestic system to influence these men; they occupy an independent and really an isolated position. Under the factory system in France intemperance is often dealt with effectually, and the first honor belongs to the heads of the establishments. By concerted action, which should be taken for an example, they often close their doors against those addicted to intemperance. In Amiens, in 1881, I found that the factory had brought both classes up from the condition described by Reybaud and that drunkenness had ceased to be an obstacle to the success of industrial establishments. Drunkenness, in fact, is not a serious obstacle to such success at the present time, either in this country or in Europe. This I assert not only on the authority of men occupying positions which enable them to judge, but as the result of my own investigations in leading factory centers. The study of the conditions attending the hand-weavers of Lyons brings the facts stated by Reybaud into clear light. In Lyons at the present time there are about 40,000 hand-weavers working upon silk goods. These weavers live and work in small rooms, in high buildings, some of them having eight stories. The sleeping places of the children are recesses or shelves, like small scaffoldings, on the walls. Sometimes the *chef d'atelier* runs several looms in one large room, paying the weavers, who in this case live elsewhere, one-half the proceeds from their work; but the larger number live, work, and sleep in the same apartments. This is true to the extent that in many cases, as the hand-weavers of Lyons themselves have informed me, work can be done upon black goods only, as the vapors from cooking would injure goods of light colors. The children of the weavers rarely go out of the rooms except on Sunday. In my visits to weavers' homes I invariably found the children clinging about the looms or tucked in the corners of the rooms, a pale and dispirited-looking class. The buildings are close and odorous from bad sanitary arrangements, and have a general penitentiary look and smell. The occupants correspond in looks and bearing with the houses. They eat little or no meat, are listless and sullen, and, taking everything into consideration, they are worse off than any other class of operatives I have ever seen. On the other hand, the power-loom silk weavers of Lyons, working in factories outside the city, have better pay, live better, are steadier, and generally thrive. Prominent manufacturers corroborated my own conclusions, and added that the manufacturer had no interest in the hand-loom weaver, for he seldom saw him, and did not superintend his work, for he did not see him at his work; while the factory worker becomes of interest in himself to the proprietors, his presence being requisite, and his usefulness depending upon constancy and sobriety.

A picture the reverse of that made by the hand-loom weavers of Lyons is presented by those of Crefeld, in Rhenish Prussia. Here there are some 40,000 hand weavers, working on silk goods, but they live and work in ample cottages, four-fifths in their own houses, and have grounds for cultivation. The living rooms are separate from the weaving rooms. The municipal government has done much to enable these people to secure houses of their own and to educate their children. Consequently the hand weavers of Crefeld are happy, contented, thrifty, and intelligent. The condition of the hand-loom weavers of Crefeld is an exception to the rule. (a)

a I visited Crefeld in June, 1881, and through the courtesy of our consul, Hon. J. S. Potter, and Herr Heimendahl, president of the chamber of commerce, I learned the secret of the prosperity of the hand weavers. I find the following in my note-book: The population of Crefeld proper is about 85,000. Around Crefeld are eighty-two small villages; in these and in Crefeld there are about 40,000 hand-loom weavers, four-fifths of them living in their own houses. These houses are very neat and comfortable; they have gardens about them, and many have two or three or more acres of land. In the town are some power-loom weavers, but they are not as happy and as contented as the hand weavers. The laws and regulations of Crefeld are made to favor the purchase of homes, freeholds, and the savings-banks aid the efforts of the municipality. The hand-loom weavers have their looms in a large room, but have three or four good rooms beside. All are well furnished and tidy. I saw scores of houses, and, without exception, they were neat and cosy cottages. The tenement house does not flourish here. The people are sober and virtuous, and apparently happy. They do not emigrate. The children are very clean and healthy. The condition of things is remarkable, and special in its nature. The whole system is the old domestic system, without the accompaniments of that system. The land system here is the secret of the success of the domestic system of industry. The weaving school of Crefeld, one of the best in the world, helps to sustain the science of hand-loom work for velvets and figured silks, so that the young are brought up to the domestic system. In other countries where the hand-loom is still used it is usually the old weaver only that is found. The weaver of Crefeld earns from 3 to 4 marks (75 cents to \$1) per day. Houses with three rooms rent for

It is true that many disadvantages appear to accompany the factory system, and these, upon superficial study, are denominated evils; but a careful study shows that these apparent evils or disadvantages do not of necessity belong to the system, nor can they be attributed to it. Such study does show that existing factory evils, so called, may be congregated by it, but are not called into existence by it. For the categorical consideration of such alleged evils they may be classified as follows:

A.—The factory system necessitates the employment of women and children to an injurious extent, and consequently its tendency is to destroy family ties and domestic habits and ultimately the home.

B.—Factory employments are injurious to health.

C.—The factory system is productive of intemperance, unthrift, and poverty.

D.—It feeds prostitution and swells the criminal lists.

E.—It tends to intellectual degeneracy.

These are the apparent disadvantages which many honestly believe belong naturally to and are inseparable from the system, and which will be associated with the system as long as it exists. For the sake of directness these will be examined in order.

A.—*The factory system necessitates the employment of women and children to an injurious extent, and consequently its tendency is to destroy family ties and domestic habits and ultimately the home.*

In one sense this is true; in another it is not true. I cannot discuss the question as to differences in the capacity of individuals, nor why this one is born to good conditions and that one to bad, but must take the facts as they are. The majority of human beings are born to the lot of toiling with their hands for their daily bread. This decree necessitates employment, and until all classes can be employed at fairly remunerative rates poverty, even to pauperism, must be a large factor in society. This was the case at the birth of the factory system. In fact, the great evils which became apparent during the early days of the system were simply, as I have said, the results of bringing together the labor which had become pauperized under the domestic system and in agricultural districts. The factory brought these evils to the light, and the employment of women and children became an offense in the eyes of the public, not because it was severer than under the old system, but because under the new the evils of such employment could be seen.

It is true that the success of the system, so far as textiles are concerned, has depended in a large degree upon such employment, and it is also true that such employment has enabled women and children to step from the ranks of degrading dependence and pauperism to the ranks of comparative comfort and the dignity which comes from self support. In the early days of the factory the children were by their employment really placed in a much better position than they occupied before.

It is to be regretted that no authoritative statistics on an extended scale exist relative to the employment of married women in factories, and the train of bad results which follows such employment. The employment of married women it seems to me is the very worst feature of factory employment, but the facts relating to it are the most meager. I have been able, however, to gather some information.

In England the proportion of married women to the whole number of women employed in textile works is unknown, but for those factories concerning which I have been able to make inquiries 10 per cent. is the average. In Germany I found from 20 to 50 per cent. of the textile-factory women to be married. Dr. Engel (*a*) gives the percentage in various industries as 24. Proprietors in both countries discourage the employment of married women. The statistics of Massachusetts show that the married female operatives constitute 8 per cent. of the whole number of females employed in all textile factories.

In the states named below, in a number of representative factories employed on plain goods only, I have found the percentage of married women to the whole number of women above fifteen years of age to be as follows: In Massachusetts, 23.5; New Hampshire, 19.9; Maine, 14.5; Connecticut, 19.4; Rhode Island, 21.9; New York, 9.9; Georgia, 19.2.

I am well satisfied from all I can learn that, taking all textile factories into consideration, the percentage would not exceed 10. It is evident, then, that in Great Britain and the United States infant mortality is not, on the whole, affected to any great degree by the employment of married women; but it is affected seriously so far as the children of those employed are concerned. In a general way the statistics of infant mortality in some of the leading factory and agricultural towns and towns with mixed employments in Massachusetts and Rhode Island are valuable as indicative of the influence of the employment of married women. The ratio of deaths of children under five years of age to 1,000 of population is given for census years only (1870, 1875, 1880), but the number of deaths in each town named is given for each year from 1870 to 1880, inclusive. I have taken these two states, because for them only could I ascertain all the elements essential for the succeeding tables.

about \$18 per annum. Members of the family not employed on the looms cultivate the soil; consequently, if styles change and times are for a while dull, the people are in good condition to wait the returns of prosperity in weaving. In the weaving school pupils are taught all processes of silk and velvet weaving, both on hand- and power-looms. In the museum of the school there are 3,000 specimens of the silk productions of different periods and countries since the thirteenth century. The people believe in technical education, and it has done, and is doing, much to enhance their prosperity.

a Of the royal bureau of statistics at Berlin.

THE FACTORY SYSTEM OF THE UNITED STATES.

MASSACHUSETTS: FACTORY CITIES AND TOWNS.

Years and classification.	Clinton.	Fall River.	Holyoke.	Lawrence.	Lowell.	Millbury.	New Bedford.	North Adams.	Pittsfield.	Southbridge.	Aggregates.
1870 { Population	5,429	26,766	10,733	28,921	40,928	4,397	21,320	12,090	11,112	5,208	166,804
Deaths under 5 years	53	265	155	252	416	38	108	106	68	44	1,565
Deaths under 5 years to 1,000 of population ..	9.8	9.9	14.4	8.7	10.2	8.6	5.1	8.8	6.1	8.4	9.0
1871	58	280	135	208	347	49	90	71	41	64	.....
1872	52	517	251	320	392	51	194	106	112	60	.....
1873	36	670	227	312	488	42	139	107	78	50	.....
1874	35	549	214	318	509	37	141	114	92	42	.....
1875 { Population	6,781	45,340	16,200	34,916	49,688	4,529	25,895	15,760	12,207	5,740	217,176
Deaths under 5 years	49	539	225	421	382	34	180	121	78	50	2,079
Deaths under 5 years to 1,000 of population ..	7.2	11.9	13.8	12.1	7.7	7.5	7.0	7.7	6.4	8.7	9.6
1876	54	546	203	369	528	37	167	124	60	30	.....
1877	47	563	100	433	432	38	167	75	79	20	.....
1878	20	582	224	380	438	29	180	29	48	37	.....
1879	60	558	242	346	347	22	207	37	51	23	.....
1880 { Population	8,029	48,961	21,915	39,151	50,475	4,741	26,845	10,191	13,364	6,464	239,136
Deaths under 5 years	42	655	275	391	633	35	218	44	87	47	2,427
Deaths under 5 years to 1,000 of population ..	5.2	13.4	12.5	10	10.6	7.4	8.1	4.3	6.5	7.3	10.1

MASSACHUSETTS: AGRICULTURAL TOWNS.

Years and classification.	Ashby.	Ashfield.	Belmont.	Blandford.	Northfield.	Petersham.	Savoy.	Southampton.	Sudbury.	Swansea.	Aggregates.
1870 { Population	994	1,180	1,513	1,026	1,720	1,335	861	1,159	2,091	1,294	13,173
Deaths under 5 years	3	1	11	4	2	3	1	3	7	.....	85
Deaths under 5 years to 1,000 of population ..	3.0	0.8	7.3	3.9	1.2	2.2	1.2	2.6	3.3	.....	2.7
1871	3	2	11	1	2	4	2	5	4	4	.....
1872	1	2	10	3	5	.....	4	5	4	2	.....
1873	2	2	14	3	2	1	1	2	3	3	.....
1874	2	.....	6	.....	1	4	.....	3	1	2	.....
1875 { Population	962	1,190	1,937	964	1,641	1,203	730	1,050	1,177	1,308	12,162
Deaths under 5 years	1	4	16	5	4	3	2	4	6	2	47
Deaths under 5 years to 1,000 of population ..	1.0	3.4	8.3	5.2	2.4	2.5	2.7	3.8	5.1	1.5	3.9
1876	4	.....	12	3	7	1	3	5	3	5	.....
1877	1	.....	15	1	2	5	4	3	3	0	.....
1878	1	.....	10	2	8	3	1	3	5	1	.....
1879	2	2	9	2	8	7	.....	4	8	5	.....
1880 { Population	914	1,066	1,615	979	1,608	1,109	715	1,046	1,178	1,355	11,580
Deaths under 5 years .....	.....	2	9	6	4	1	1	3	3	1	30
Deaths under 5 years to 1,000 of population ..	.....	1.9	5.5	6.1	2.5	0.9	1.4	2.9	2.5	0.7	2.6

MASSACHUSETTS: CITIES AND TOWNS WITH DIVERSIFIED INDUSTRIES.

Years and classification.	Attleborough.	Cambridge.	Pitchburg.	New Marlborough.	Newton.	Northampton.	Sandwich.	Springfield.	Waltham.	Worcester.	Aggregates.
1870 { Population	6,769	30,634	11,260	1,355	12,325	10,160	3,694	26,703	9,065	41,105	163,070
Deaths under 5 years	42	362	94	6	34	44	10	195	61	464	1,252
Deaths under 5 years to 1,000 of population ..	6.2	9.1	8.3	3.2	2.7	4.3	2.7	7.3	6.7	9.8	7.7
1871	31	343	69	3	26	47	8	216	51	488	.....
1872	42	505	68	6	65	87	20	327	54	682	.....
1873	62	421	72	5	58	82	12	268	63	412	.....
1874	38	528	67	3	68	91	10	239	45	381	.....
1875 { Population	9,224	47,888	12,289	2,037	16,165	11,108	3,417	31,053	9,967	49,317	192,355
Deaths under 5 years	60	571	70	5	73	78	12	248	69	418	1,604
Deaths under 5 years to 1,000 of population ..	6.5	11.9	5.7	2.5	4.5	7.0	3.5	8.0	6.9	8.5	8.3
1876	41	419	198	3	88	67	10	228	50	423	.....
1877	41	473	73	10	70	43	10	165	64	415	.....
1878	46	396	46	7	82	39	7	146	63	346	.....
1879	37	370	49	3	65	46	5	227	48	340	.....
1880 { Population	11,111	52,660	12,429	1,876	19,995	12,172	3,543	33,340	11,712	58,291	214,138
Deaths under 5 years	67	377	94	3	86	60	16	240	46	454	1,448
Deaths under 5 years to 1,000 of population ..	6.0	7.2	7.6	1.6	5.1	4.9	4.5	7.2	3.9	7.8	6.7

THE FACTORY SYSTEM OF THE UNITED STATES.

RHODE ISLAND: FACTORY CITIES AND TOWNS.

Years and classification.		Burrillville.	Lincoln.	Pawtucket.	West-erly.	Woon-socket.	Aggre-gates.
1870	Population	4,674	.....	6,619	4,709	*7,698	23,700
	Deaths under 5 years	18	.....	29	6	30	89
	Deaths under 5 years to 1,000 of population	3.9	.....	4.4	1.3	4.7	8.8
1871	.....	14	87	25	12	61	.....
1872	.....	25	91	28	18	162	.....
1873	.....	24	92	29	28	141	.....
1874	.....	29	99	90	18	110	.....
1875	Population	5,249	11,565	18,494	5,408	13,576	54,262
	Deaths under 5 years	22	88	87	28	134	359
	Deaths under 5 years to 1,000 of population	4.2	7.6	4.7	5.2	9.9	6.6
1876	.....	15	97	103	13	107	.....
1877	.....	23	119	135	21	141	.....
1878	.....	11	85	123	12	120	.....
1879	.....	17	84	106	20	127	.....
1880	Population	5,714	13,765	19,930	6,104	16,050	60,663
	Deaths under 5 years	43	98	121	32	170	464
	Deaths under 5 years to 1,000 of population	7.5	7.1	6.4	5.2	10.6	7.0

* Not including population acquired in 1870 by annexation from Smithfield.

RHODE ISLAND: AGRICULTURAL TOWNS.

Years and classification.		Coven-try.	Foster.	Gloucester.	Scituate.	South Kings-town.	Aggre-gates.
1870	Population	4,349	1,630	2,385	3,840	4,493	16,703
	Deaths under 5 years	14	.....	2	8	11	35
	Deaths under 5 years to 1,000 of population	3.2	.....	0.8	2.1	2.4	2.1
1871	.....	17	.....	4	14	12	.....
1872	.....	22	3	8	10	10	.....
1873	.....	14	2	6	10	10	.....
1874	.....	19	2	15	18	7	.....
1875	Population	4,580	1,543	2,098	4,101	4,240	19,562
	Deaths under 5 years	12	3	3	25	19	62
	Deaths under 5 years to 1,000 of population	2.6	1.9	1.4	6.1	4.5	3.7
1876	.....	14	2	9	9	8	.....
1877	.....	7	3	5	12	12	.....
1878	.....	21	1	6	15	6	.....
1879	.....	12	.....	8	6	8	.....
1880	Population	4,519	1,552	2,250	3,810	5,114	17,245
	Deaths under 5 years	14	2	9	13	4	42
	Deaths under 5 years to 1,000 of population	3.1	1.3	4.0	3.4	0.8	2.4

RHODE ISLAND: TOWNS WITH DIVERSIFIED INDUSTRIES.

Years and classification.		Cumber-land.	North Kings-town.	Smith-field.	Warren.	War-wick.	Aggre-gates.
1870	Population	3,882	3,568	*17,378	3,008	10,453	38,288
	Deaths under 5 years	10	16	39	6	37	108
	Deaths under 5 years to 1,000 of population	2.6	4.5	2.2	2.0	3.5	2.8
1871	.....	15	12	2	16	71	.....
1872	.....	19	15	5	27	58	.....
1873	.....	19	10	4	26	40	.....
1874	.....	22	17	7	18	54	.....
1875	Population	5,673	3,505	2,857	4,005	11,614	27,054
	Deaths under 5 years	24	11	9	31	47	122
	Deaths under 5 years to 1,000 of population	4.2	3.1	3.2	7.7	4.0	4.4
1876	.....	11	10	6	10	37	.....
1877	.....	31	7	12	34	49	.....
1878	.....	33	7	11	29	58	.....
1879	.....	28	7	5	16	75	.....
1880	Population	6,445	3,949	3,985	4,007	12,104	29,050
	Deaths under 5 years	40	17	10	18	58	152
	Deaths under 5 years to 1,000 of population	7.6	4.3	3.2	4.5	4.8	5.1

* Including present towns of Lincoln and North Smithfield, and part of present town of Woonsocket.

The tables are very significant, although it must not be presumed that the employment of married women is the sole cause of the very high percentage of deaths under five years in factory towns compared with deaths in towns of diversified industries and agricultural towns. Crowded houses, bad sanitation, and the general effect of compact towns upon young children, especially during inclement seasons, are potent influences in producing the high rates in the first class of towns given in the preceding tables. The statistics of factory towns in England do not exhibit a larger proportion of deaths of infants than occur in other large towns where few or no factories are in operation, yet the proportion is very much larger than in agricultural towns.

In Germany, according to information furnished by Dr. Ernst Engel, chief of the royal bureau of statistics, in a factory city in the district of Zwickau, a few years ago, out of 459 children born in one year, 169, or 36 per cent., died under one year of age. Of those who died it was learned that 98 had not been nursed at all, and only 32 for the full time. In another factory city in the same district, in the same year, out of 423 children born, 185, or 43 per cent., died the first year, of whom 98 were never nursed at all, and only 23 for the full time, and of the remainder only two for more than twenty weeks. In a third city, 48 per cent. in 1873 and 41 per cent. in 1874 of all the children who died had not reached the age of one year, and the great majority were the children of factory operatives. In a fourth factory city, of 731 persons who died in 1874 the children numbered 510, of whom 406 were under one year of age. The attending physicians in the cities ascribed the infant mortality partly to the bad condition of houses, but mainly, without hesitation, to the fact that the mothers gave their attention to the work in the factory; that natural nursing was either given up entirely or continued for only a short time; and that the children, instead of receiving a mother's care, were left to the guardianship of older children.

In the district of Liegnitz, in Prussia, the rate of mortality has decreased among small children since hand-loom weaving gave way to factory employment. At Aix, in all cases where the mothers resumed work in the factory soon after confinement, an unusual mortality occurred among the infants.

In the greater part of the districts of Bavaria the health of the factory operatives seems good. If here and there a greater mortality among infants and poor health among the older children are met with, it should not be ascribed to any special branch of industry, nor necessarily to factory work, but to the unfavorable conditions under which children belonging to the working class, whether in the factory or out of it, are brought up.

In Swabia, the city of Augsburg alone furnishes unfavorable reports. Out of 418 children under one year belonging to the factory population, 273, or 65 per cent., died in a year; out of 1,692 infants of the remaining population, 732, or 43 per cent., died.

In Wurttemberg much complaint has been made of an excessive mortality among infants, but the cause is thought to be, not that the mothers are employed in the factories, but in that lack of maternal care which is notorious among the working classes of this district. According to the statistics from these districts, the mortality is often greatest in those places in which few women are employed in the factories, while places in which such employment is general make a favorable showing as to infant mortality.

The mortality among infants in Baden and Hesse does not seem disproportionately large among the factory population. A single report from Hesse speaks of an unusual mortality due to lack of proper care and food.

Some physicians in Saxe-Meiningen report an excessive mortality among the infants of those women who are employed in the porcelain and toy trades. This is true not only for those employed in the shops, but for those who work in their own houses.

By the German law (*a*) women are not to be employed for three weeks after confinement, and in some factories they are allowed three-fourths of their wages for this period of rest. I know of no such provision of law elsewhere. My own investigations in large representative factory towns in this country indicate the evil results of the employment of married women. In many cases where mothers had lost their first, second, and in some cases the third child, while operatives, they had, on leaving the factory, raised up children, each succeeding child growing more healthy as the period after factory work became more extended. A well-known physician in one of the towns spoken of informed me that chlorosis attended factory work among young girls; that in Canada, where he had practiced, about 10 per cent. of the females were attacked by this disease, while in the factory towns in the states he found 90 per cent. of the Canadian girls suffering from this trouble. Many physicians in factory places testify that functional irregularities prevail among female operatives to a greater extent than among others; on the contrary, some of the most eminent practitioners give an opinion at variance with this, and insist that if home life is cleanly, and accompanied by good conditions, the factory worker should be as healthy as others. One of the best known physicians in one of the largest factory towns in New England states that factory labor does not incapacitate women for bearing healthy children; that it is better for them to work in factories than to pass the period of gestation in inactivity, as many of the wealthy do; that the air-space in the mills is sufficient to insure pure air, the ventilation being far superior in the mills to that in the homes of the operatives. He is of the opinion, however, that too severe work entails a bad state of health upon mother and child. It is the testimony of all physicians that the factory is better for married and even pregnant women than unwholesome houses. In one city, from thirty-two families where the mothers had continued in the factories almost till confinement, there had been forty-four deaths of infants.

a See section on "Factory Legislation".

I am confident, from all the testimony I have been able to gather, that there are many more children of mothers working in factories during pregnancy who die in infancy than of other classes; and that while many children die when only a few months or a year old, in consequence of the factory work of the mother during pregnancy, many born healthy, or comparatively so, die from want of proper maternal care. I am further satisfied that the conditions of the homes of these women are as deleterious to their health, and to infants born to them, as the work of the factory. I am also satisfied that to exclude such women from the factory would be an act of great injustice to those concerned. And yet I am satisfied that the employment of married women is the worst apparent evil of the factory system. I am not aware of many attempts to relieve communities of the unhappy results of such employment.

At Mulhouse, in Alsace, the birthplace of industrial societies, there are maternity associations for aiding factory women in confinement. It is worth while in this country to study the effect of such institutions, and I have therefore extracted from a recent official document, published at Mulhouse, an account of the attempts in that city to aid women:

We know what considerations affect the state of the woman who is to become the mother of a child. The least imprudence can compromise the existence of two beings, the mother and the child which is to be. Mothers know in general that prolonged privations or too much hard work exert a disastrous influence on the shape and health of the child. Nothing is more distressing than the condition of the woman who becomes a mother when she is not surrounded by those conditions of well-being and care which her state requires. On the other hand, nothing sadder, from a humanitarian point of view, can be seen than the frightful mortality which affects children in the first days of their lives, when they lack aid and indispensable precautions in the first months of their existence.

Dr. Penot stated on authority, ten years ago, in a report made to the Industrial Society of Mulhouse, that in the industrial cities, more than anywhere else, the mothers, pressed by want, continued their work in the factories to the last moment possible, almost to the time of their becoming mothers, and that they resumed work in a very few days afterward, which course could not fail to give very deplorable results as regards sickness and death among the mothers as well as the young children. Justly excited by this state of things, the manufacturers and heads of firms of the greater part of our establishments were soon actively engaged in taking proper measures to supply a suitable remedy by establishing funds for the aid of women in labor. These excellent institutions have carried on their work almost without change for fifteen years, and have largely increased; the most encouraging results have been obtained.

Several industrial establishments take upon themselves the cost of the midwife, medicine, clothing, etc., and beside pay the mother her daily wages during the time devoted to necessary rest.

Messrs. Hartmann, Schmalzer & Co. (now Germain & Co.), at Malmerspach, pay to the working woman when she becomes a mother the sum of 20 francs, and beside her full wages for the first four weeks afterward, on condition that she devotes all her time to the care of herself and child. In certain cases the unmarried mothers are allowed to enjoy the same advantages.

At Guebwiller, Messrs. Bourcart, Son & Co., since 1865, have paid all the necessary expenses of their working women who became mothers, beside their full wages for three weeks. Several ladies of this city have also established an association the object of which is to furnish aid to women about to become mothers. In 1877 the number of women aided was 300; the sum spent each year is about 1,200 francs. At Cernay, Messrs. J. Gros & Co. pay for medical care and 50 francs beside, on condition that the mothers do not begin work for fifteen days.

In 1864, Mr. Jean Dollfus brought to the attention of the Industrial Society the important question of caring for women in labor. The house of Dollfus, Mieg & Co. had adopted the plan of paying the charges of the midwives, and also had paid the wages of the working women until their health was fully restored. Mr. Jean Dollfus saw by examination of the records, that had been kept with care, that the number of deaths of children belonging to the working people in his employ had sensibly diminished as the result of the measures he had taken. He spoke of his plan, and recommended it to the attention of the other manufacturers. It was only necessary to bring to their knowledge so important a fact to have them look at it immediately in the same light, and they began at once the study of the question.

The question is not as simple as it at first appears. Although decided to make all necessary sacrifices, the heads of establishments were not in accord as to ways and means. Was it expedient to make a distinction between married women and unmarried mothers in the distribution of aid? Was it best for the patrons to bear all the expense of such aid, or was it better for all the women in an establishment to have a certain sum retained from their wages and put into a common fund, the firm adding an equal sum each time? The two systems have been tried.

Messrs. Trapp & Co., to-day Tournier & Co., have also given aid to women and girls in labor, but without having any recourse to any association whatever, the firm paying all expenses; only, in order to establish a distinction between the married women and the unmarried mothers, Messrs. Trapp & Co. give help openly to the first, but reach the latter who need assistance in an indirect way. These various regulations each have merit and have been regularly carried out for a sufficient number of years to enable us to prove with great satisfaction the happy results obtained.

The most important of these organizations, which is centralized in the house of Dollfus, Mieg & Co., has undergone many changes since 1872; the assessments for each working woman after three years were raised from 15 to 20 centimes, the patrons paying the same sum. Since that time the association, which was in debt 2,600 francs, has paid that sum, and in 1877 had in its treasury 11,152.25 francs. The aid paid to each woman is now 60 francs for the full six weeks, instead of the 54 francs paid up to 1875. The woman has also received during the past year the services of a physician without expense, and the association pays the apothecary. In several cases the association has purchased clothing for the infants, which has been given to the most needy women. Every five years a report is made of the results secured by the association. The first of these reports was made to the Industrial Society by Mr. Bunnat in 1871; the second by Mr. Gustave Dollfus in 1875. These two reports show a considerable amelioration in the health of the women and children assisted, and a notable diminution in their mortality since 1872. It is shown that the mortality of children born within the association, reckoning from the day of birth to one year, has fallen from 28 to 21 per cent. This result is satisfactory enough to encourage both the manufacturers and the employés to continue in the path they have so far followed.

It is perhaps to be regretted that all the manufacturers in this locality have not joined in one association; for often in changing from one factory to another a working woman who finds herself in need of aid from the association loses it because she has not worked long enough in one of the establishments belonging to it. The services that these institutions have rendered for more than ten years are well known and appreciated; many working women not employed in the associated establishments voluntarily pay 40 centimes assessment, in order to enjoy the advantages that the association supplies.

Mr. Gustave Dollfus, of Mulhouse, a broad philanthropist, who has learned his philanthropy from his knowledge as a large manufacturer of the wants of the operatives, made a report to the Industrial Society of Mulhouse, in February, 1880, upon the results of the efforts of the Maternity Association. In this report Mr. Dollfus said :

When M. Jean Dollfus proposed the foundation of this association, in 1866, he did not foresee remarkable results. Our association dates from August, 1866. It is consequently thirteen years old. There have been during that time 3,281 births of living children and 151 still-born, being an average of 4.40 per cent. The first six years show an average of 5.47 per cent. of still-born, while the last six years show an average of 3.26 per cent. The year 1877-'78 shows only 1.61 per cent., which is a diminution of 44 per cent. in the number of still-born.

The proportion of illegitimate births shows an average of 19.47 per cent.; there has been a noticeable falling off, for the first six years give an average of 21.02 per cent. and the last six years 17.82 per cent., showing a falling off of 14.30 per cent. in the number of illegitimate births. The deaths to 100 births, from a day old to six months, were, for legitimate children, 21.33 per cent. for the first three years, and 13.78 per cent. for the last three years. For illegitimate children in the same years the average of 30.84 per cent. was reduced to 16.55 per cent. In the first case the reduction has been 36 per cent., and in the second case 46 per cent. of the number of deaths. The number of those dying between six months and a year has remained about the same.

The total number of deaths of legitimate children at the end of a year, which was 26.36 per cent., has been reduced to 19.86 per cent., and that of illegitimate children from 38.52 per cent. to 25.82 per cent. As a whole, the mortality of children, which was 28 per cent., is no more for the last three years than 20.86 per cent.; that is to say, the falling off has been 27 per cent. of the number of deaths.

With an average of 267 births in a year there have been during the last three years 52 deaths, instead of 72, which was the proportion for the first three years. The result is striking, and certainly merits careful attention.

The association made payable to its members from 1866 to 1873 an assessment of 15 centimes; the proprietor added for each working woman an equal sum. The woman in confinement received then 54 francs for six weeks, during which she was obliged to remain at home to give to her new-born child the care that it needed. The association numbered then 1,946 members and had 286 births in a year. The assessment was found to be too small, for at the end of the seven years the treasury showed a deficit of 4,000 francs. Since June, 1873, each working woman has paid an assessment of 20 centimes, and so has the proprietor; the deficit has been covered, and the treasury has a reserve of 16,000 francs. The assistance, which was 54 francs, has been raised to 60 francs. The association binds itself to pay the midwife 8 francs and the fees of the physician and apothecary in case of the sickness of the mother or child. The year 1878-'79 showed only 1,550 members; this falling off was caused by a reduction in the number of employes in certain print-works. Messrs. Schaeffer & Lalance, having noticed the results obtained, have decided with ardor to have their employes join the association, so that we number to-day 1,738 members.

We wish and ought to show the moral influence of the association, as well as the benefits that an examination of the statistics proves have been secured. A woman depending upon her own labor for her support returns to the factory as soon as possible after her confinement and leaves her child in the care of strangers or puts it out to nurse. The mother is thus, from the first, forced to separate herself from her child, to which she has not had time to become attached. This child will remain all its life little better than an adopted child; the mother will not show for it the true maternal love. The family tie will not exist; but if it does, it will be very feeble. The six weeks during which the mother takes care of her child will attach them to each other. The maternal love will be developed, will become rooted in the mother's heart, and the family ties so established will last forever. To attach children to their parents and parents to their children is a moral work and elevates the dignity of both. Our regulations have been sent for from Paris and London, where the public aid prefers, as we do, this kind of an association to the nursery or infant asylum, because it develops the family ties, while the others break them and prevent their growth. It can be seen that our association is doing a good work; for that reason it is so much the more to be regretted that, as a general measure, all the establishments in our city do not decide to join it, for then so much more good could be done. (a)

The following table shows the results within and without the association at Mulhouse, and in comparison with a district more rural in its conditions :

INFANT MORTALITY IN THE FIRST YEAR AFTER BIRTH.

[Twins are counted only as one birth.]

Places and years.	Births, not including still-born.			Still-born.	Still-born to 100 births.	Illegitimate to 100 births.	Deaths (at the end of first year) to 100 births.		
	Legitimate.	Illegitimate.	Total.				Legitimate.	Illegitimate.	Total.
Mulhouse, 1871.....	1,567	413	1,980	98	4.72	20.86	36.56	51.57	39.69
Mulhouse, 1878.....	2,019	383	2,402	115	4.57	15.90	26.50	48.34	29.18
Average.....					4.64	18.40	31.53	47.45	34.43
Brunstatt, 1871.....	96	6	102	0	5.56	5.88	81.25	100.00	35.29
Brunstatt, 1873.....	96	2	98	5	4.85	2.04	28.25	100.00	20.60
Average.....					5.20	8.96	29.75	100.00	32.44
Association,* 1871.....	194	81	275	19	6.46	29.45	23.19	48.14	30.54
Association, 1873.....	268	41	309	8	2.52	13.27	28.86	46.84	26.44
Average.....					4.40	21.86	47.49	47.49	29.99

*For aiding women in labor.

Does the employment of women and children tend to destroy the home? To the extent that women who are mothers and have the care of a household, and who become careless of maternal ties through hard work and maternal duties combined, it does; for the factory mother who has buried several children learns sooner or later to speak of

her losses in a careless and unfeeling manner. Domestic felicity does not and cannot reach a very high place when a mother must arise before the rest of the family to prepare hastily the breakfast for all, then hasten to the mill and make her time good till the noon hour, when the dinner must be prepared as hastily as was the breakfast; while at night, after a day of constant labor, she must see that supper is served and then take up the thousand and one duties of the household, which keep her busy till the hour has long passed when she should be asleep. No ten-hour law has been able to reach the factory woman with a family.

It is gratifying to be able to believe that the number of married women employed in factories is decreasing. Notwithstanding the evil results of their employment, their condition is a vast improvement upon that which surrounded the workers under the domestic system.

The home in the United States suffered more from the institution of the factory system than it did in England, for there the factory found a population ready to become factory workers, while here it was necessary to provide for a new population, and this opened the way for the tenement house and the factory boarding-house, two features of factory life quite unknown in England and on the continent, and which are gradually disappearing in this country, (a) while the individual home is increasing in its influence. With this growth of the influence of the individual home there is, as I have said, a gradual decrease in the employment of married women. If, at times, the employment of women has taken the mother from the care of her infant, it has enabled more who had no home to become self-supporting, for the employment of women generally is now no evil, thanks to improved machinery and generally wise legislation.

Young children are now almost universally excluded from the factory and workshop. Where their age permits, they are much better off inside than outside the factory, and their employment enables them to contribute to home support rather than to draw from the income of the family.

B.—Factory employments are injurious to health.

That some factory employments are injurious to health is true, but it is not true that factory employment, as such, in comparison with any other mechanical employment, is unhealthy. A recent writer, describing a watch factory, states what is true as to all factories:

The first requisites of a watch factory are neatness and abundance of light. It is now recognized that no man can do his best work unless he is physically comfortable. Excess of heat or cold, a poor light, and, more than all, bad air, are positive hinderances to good work. Of two men, equally skilled, one in a close, damp, or hot room with a bad light, and the other in a dry, sweet, and healthful room with the best light, the man who has the most comfortable quarters will do the most and best work in a day.

It is now seen that everything that contributes to the physical and mental comfort of workmen pays a good return on the cost, and certainly makes better citizens of the operatives.

Intelligent employers of labor adopt all plans which can be devised for securing the health of their operatives. Factory legislation compels the ignorant employer to adopt them. If some means could be devised to make all the homes of the operatives as neat, clean, and wholesome as the factory, we should hear no more of the tendency of the factory to physical degeneracy. All employments have features not conducive to health. These features are incidental, and cannot be separated from the employment. In mining coal, for instance, the nature of the occupation is bad in nearly all respects; but coal must be had, and there is never any lack of miners. What, then, shall be done? Operators are in duty bound, of course, to make all evils, whether incidental or artificial, as light as possible, and should introduce every improvement which will lighten the burdens of all who are obliged to seek employment in the lowest grades of labor. Machinery is constantly elevating the grades of labor and the laborer. The working of mines, even, is to-day an easy task compared to what it was a few years ago. The workers themselves have much responsibility on their own shoulders, so far as the healthfulness or unhealthfulness of an occupation is concerned. The professional man can soon burn out his fires if he does not have a care for the supply of fuel. Sedentary habits are as bad for one class of workers as the presence of fibers, smoke, and dust is for another, and each should be held responsible for the best care of himself under whatever condition he finds himself employed. Let the children of factory workers everywhere be educated in the rudiments of sanitary science, and then let law say that bad air shall be prohibited, even in homes, and I believe the question of the health of the operatives will not so seriously trouble us.

It is often asserted that the air of the factory is very deleterious to health, not only because it is impure, but because there is an insufficient supply. This assertion comes from persons who have not inspected factories. To the man acquainted with the inside of a textile factory no evidence is needed, but to the public it may be essential. I am able to present facts on this point relating to Mulhouse and to Massachusetts.

Some years ago, while calculating the average air-space allowed to each operative in the textile factories of Massachusetts, I ascertained, so far as possible from scientific sources, the amount of air-space which has been deemed essential to secure a proper condition under which the operative may work with safety, so far as the air he breathes is concerned.

The royal commissioners appointed by the British government to inquire into the sanitary condition of barracks and hospitals reported, in 1857, that the capacity of the rooms should be not less than 600 cubic feet of air-space for each soldier, and the supply of air per minute and per man not less than 20 cubic feet. Mr. Carl Pfeiffer,

formerly secretary of the American Institute of Architects, has given the following estimate of fresh air required by every person every hour :

	Cubic feet.
In hospitals, ordinary patients	2, 000 to 2, 800
In hospitals, wounded patients	4, 800
In hospitals, epidemic patients	5, 600
In workshops	2, 000 to 3, 500
In prisons	2, 100
In barracks	1, 000 to 1, 650
In theaters	1, 400 to 2, 400
In schools for children	400 to 500

By this estimate each operative should have from 2,000 to 3,500 cubic feet of fresh air per hour, or a supply of from 30 to 60 cubic feet per minute.

Pettenkofer, Wilson, and Parkes, all eminent authorities, agree in the opinion that 3,000 cubic feet of pure air should be supplied to each adult per hour, or about 50 cubic feet per minute; that the problem is to determine how many times the air in a smaller space can be changed; how much smaller the space may be than 3,000 cubic feet; and what agencies shall be used to change the air. Practically it is determined that by what is called natural ventilation (*i. e.*, no fans, blowers, exhausts, etc., being used) the air in a small space can be changed but a few times per hour without creating draught; hence the smaller the space the more rapid the change must be, and the greater the danger from draught; and, indeed, without the best appliances, air can be changed in a small space only a few times, say six or eight per hour, at best, without danger. Consequently, it is far better to have 3,000 cubic feet of air-space, and change the air gradually once an hour, than an air-space of 1,000 cubic feet and change three times an hour.

Ranke, in his *Elements of Physiology*, fixes as the necessary minimum amount for each individual the average quantity of 2,118 cubic feet of air per hour, or about 35 cubic feet per minute. It is well established that the breath of one adult will vitiate about 500 cubic feet of air per hour, while the heat of the body, of gas and other lights, fires, etc., will vitiate perhaps half as much more; so that, on this basis, an adult in a sweet and well-built dwelling requires at least from 700 to 800 cubic feet of air per hour. How much, then, should the operative have when surrounded by the various gases, steam, dust, heated air, and oil-fouling condition of the factory, and working in a room with many others—all the circumstances connected with his employment demanding a large consumption of oxygen? It is clearly and quite positively shown that an operative in our mills, or a workman in our work shops, should have a supply of fresh air of from 25 to 50 cubic feet per minute, or 1,500 to 3,000 cubic feet per hour, and an air-space of from 1,000 to 3,000 cubic feet, according to surroundings and means of ventilation. The statistics show whether or not he has this air-space.

I have the exact measurement of 2,140 separate rooms, comprising 64 different kinds of rooms, or rooms used for 64 different purposes, in textile factories. The following table shows the style of room, number of each kind examined, the average amount of air-space to each operative employed in the various rooms; also, the largest and the least amount of air-space to one operative, in the several departments. A few large rooms used for purposes where but a small number of people are employed have been left out of the table, but they do not affect the average given. It will be borne in mind that machinery and materials diminish the average amounts of air-space given at least 25 per cent.

Names of rooms.	Number of rooms inspected.	Average air-space, in cubic feet, to each operative.	Largest amount of air-space, in cubic feet, to one operative.	Least amount of air-space, in cubic feet, to one operative.	Names of rooms.	Number of rooms inspected.	Average air-space, in cubic feet, to each operative.	Largest amount of air-space, in cubic feet, to one operative.	Least amount of air-space, in cubic feet, to one operative.
Blenchery	21	7, 055	50, 869	1, 428	Packing	93	5, 269	24, 901	532
Boiler-room	9	19, 485	73, 500	4, 160	Picker-house	32	7, 434	24, 900	923
Braiding-room	4	5, 246	12, 666	2, 037	Printing	11	2, 458	4, 420	579
Burling-room	7	2, 200	6, 720	847	Repairing	43	4, 890	15, 850	1, 178
Cloth-room	9	3, 620	6, 321	1, 180	Reeling	6	2, 551	6, 840	784
Combing-room	3	5, 554	7, 250	3, 571	Spinning (ring)	127	3, 049	11, 572	555
Carding	13	3, 461	6, 652	1, 125	Spinning (mule)	281	5, 213	21, 860	687
Cotton-house	3	10, 758	19, 200	1, 574	Spinning (jack)	33	3, 279	10, 944	1, 519
Dressing	139	6, 748	39, 583	1, 014	Spinning (flyer)	4	8, 692	24, 055	1, 579
Dyeing	80	5, 680	70, 025	443	Spinning (cop)	4	1, 802	2, 231	1, 313
Drying	56	11, 782	53, 912	1, 188	Spooling and warping	162	3, 953	21, 299	574
Engine-room	6	14, 113	24, 288	2, 540	Scouring	19	6, 079	11, 000	1, 027
Engraving-room	7	2, 130	3, 000	521	Steaming	2	20, 531	38, 400	2, 672
Finishing-room	109	3, 298	26, 673	540	Shearing	7	10, 289	50, 860	2, 400
Folding-room	20	3, 748	12, 393	974	Twisting	6	3, 736	6, 840	1, 803
Fulling-room	11	4, 487	11, 037	2, 000	Weaving	276	3, 327	34, 908	495
Gigging-room	9	3, 573	5, 113	2, 330	Wool washing	6	8, 713	27, 440	1, 809
Hosiery-room	4	1, 437	3, 612	1, 126	Wool sorting	28	3, 131	13, 060	1, 035
Machinery	26	7, 022	50, 000	720	Winding	7	1, 371	3, 278	511
Preparation	395	5, 815	62, 050	947					

The following table shows the ventilation for the factories of Mulhouse:

Industry.	Number of employes.	Cubic feet for each employe.	Remarks.	Industry.	Number of employes.	Cubic feet for each employe.	Remarks.
Cotton carding	117	2, 191	Stories.	Cotton spinning.....	67	6, 184	Stories.
Do.....	89	2, 509	Do.	Do.....	32	6, 254	Do.
Do.....	115	2, 756	Do.	Do.....	207	7, 703	Ground floor.
Do.....	27	3, 110	Do.	Do.....	25	7, 703	Stories.
Do.....	30	3, 075	Do.	Do.....	75	9, 294	Ground floor.
Do.....	57	3, 710	Do.	Wool spinning.....	307	4, 417	Do.
Do.....	225	4, 205	Ground floor.	Do.....	138	4, 876	Do.
Do.....	8	5, 407	Stories.	Do.....	160	5, 613	Do.
Do.....	44	7, 951	Ground floor.	Wool twisting and reeling.....	161	2, 050	Stories.
Do.....	13	8, 754	Stories.	Wool twisting.....	56	3, 296	Do.
Wool combing.....	115	4, 735	Ground floor.	Washing and pressing wool...	35	5, 265	Ground floor.
Do.....	77	7, 279	Do.	Preparing for weaving.....		1, 626	Stories.
Cotton spinning.....	10	4, 064	Stories.	Do.....	43	2, 191	Do.
Do.....	25	4, 417	Do.	Do.....		3, 251	Do.
Do.....	135	4, 523	Do.	Weaving.....	354	1, 201	Do.
Do.....	87	4, 947	Do.	Do.....	680	1, 343	Ground floor.
Do.....	17	5, 613	Do.	Do.....		1, 519	Do.
Do.....	145	6, 149	Ground floor.	Do.....	346	2, 156	Do.

These facts are of the highest value in answering the question relative to crowded factories, and are as true of Great Britain as of Alsace and of Massachusetts. The trouble is not in the air-space of the factories, but in that of the homes. In the construction of factories of all kinds at the present time the most careful attention is paid to their ventilation, and large sums are paid for improved methods of changing the air and for regulating its temperature. The air of a cotton factory is better than that of a lecture-room.

It is often alleged that the mortality of factory operatives is much higher than for other classes of wage workers. This is true in some sense, and for some localities, but not as a rule, as the following tables will show.

The following table shows, for England, the influence of occupations on mortality, at different ages, in 1853:

Occupations.	Age.		Years during which the influence of the occupation shows itself the most.				Age.	
	15 years.	20 years.	25 years.	35 years.	45 years.	55 years.	65 years.	75 years.
	Average of mortality per 100 in all classes.....	0.632	0.859	0.985	1.305	1.853	3.215	6.676	16.584
Protestant clergymen.....		0.090	0.583	0.730	0.933	2.460	5.627	16.398
Physicians.....		1.117	1.287	1.474	2.047	3.046	6.287	13.414
Civil engineers.....	0.169	0.577	0.944	1.531	1.049	2.217	5.387	20.389
Servants.....	0.242	0.503	0.901	1.368	1.857	3.184	7.848	22.786
Coachmen.....	0.306	1.091	1.218	2.025	2.954	4.724	9.986	22.076
Tailors.....	0.644	1.087	1.200	1.355	2.006	3.300	6.982	18.451
Butchers.....	0.232	0.589	1.005	1.732	2.245	3.745	8.223	20.162
Cotton operatives.....	0.714		0.929	1.166	1.855	3.723	8.527	22.617
Miners.....	0.308		0.984	1.245	2.047	4.350	10.026	24.807
Day laborers.....	0.513		0.872	1.080	1.597	2.784	6.060	18.250
Farmers.....	0.484		0.694	0.834	1.221	2.313	5.065	16.805

From this table it can be seen that the mortality of clergymen is least, while coachmen, butchers, and miners have the least chance to live long. The cotton operatives present this peculiarity, that they do not sensibly exceed the average until they arrive at fifty-five years of age.

The following statement shows the mortality to 1,000 persons in each occupation in Paris, France, in 1853:

Lawyers.....	28.70
Architects, engineers, and mathematicians.....	39.80
Servants.....	155.80
Cultivators (farmers).....	62.90
Fundholders and proprietors (landlords).....	27.90
Rag pickers.....	37.29
Workmen in shops.....	49.00
Cotton operatives.....	27.00
Army.....	403.00

This statement shows that the death-rate in Paris is largest among the servants. This is explained by the small rooms in the mansards where they sleep, by dark kitchens, etc. They are also persons unfitted to do the heavy work in the country, being too weak physically, and consequently they flock to the cities.

It will be seen from the tables, pages 21 and 22, that the percentage of infant decedents to the population in factory towns is very much lower in Rhode Island than in Massachusetts, even with the fact that deaths under five only are given for Rhode Island, while for Massachusetts they also include the children of five years of age. The proportion of children employed in textile factories to the whole number of persons employed is larger in Rhode Island than in Massachusetts, being 18+ per cent. for the former state and 11 per cent. for the latter.

It is perfectly easy, if one is so disposed, to prove by statistics that factory employments are very detrimental to health, or that they are no more so than other mechanical employments. For instance, of 837 spinners employed in fine spinning in Manchester, England, in 1832, before the miserable cellarages of that town had begun to disappear, 621, or 74.2 per cent., reported themselves in good health, 171, or 20.4 per cent., to have pretty good health, and 45, or only 5.4 per cent., to be in indifferent health.

I have found many men and women in the linen factories of Dundee who had worked in flax and jute for thirty years or so, and in the worst processes of transforming the raw material to yarn, and, with the exception of the hand hacklers, the answer to my questions as to the effect of the work was that no ill effects were experienced. Examples of the reverse might easily be given, for it is quite true that the unhealthfulness of some kinds of labor performed in factories has been and is considerable, although less than the bad effects attending the household system. In spinning-rooms, for instance, the flying particles of fiber have a deleterious effect. Science is removing the effects of cotton dust as well as the effects of revolving shafts and the presence of steam in some departments.

Physicians make very conflicting reports regarding the health of factory operatives for different localities, or sections of the same city even. My own conclusion in the matter is that factory operatives, so far as reasonable labor is concerned, may be as healthy as any other class engaged in mechanical pursuits; that if they are not so, it is owing to one of two causes, or the two combined, namely, too severe labor imposed, or bad sanitary conditions at home, for the difference in the health of those families who live in individual houses where hygienic care is taken and those living in close quarters in crowded tenements, the work being equal for both, is very marked indeed. So the statistics of the one or the other portion of factory operatives proves the one or the other conclusion, as the motive of the person using the statistics may indicate. The truth lies between the two extremes. In a factory center, where every effort is put forth by the proprietor to secure good homes and every means is taken for cleanliness in homes and in mills—and the operatives are sufficiently progressive to co-operate with the proprietors, and these two conditions are generally found together—the mortality rates will not be exceptional. Reverse these conditions, and the rate rises in proportion to the general neglect.

Arguments are often drawn from the statistics of Manchester, England, relative to the past; but thirty or forty years ago there were nearly 50,000 working people in Manchester living in cellarages or underground dens. To-day there are not half a dozen families living in such abodes, and consequently the deaths from zymotic diseases have been reduced to the lowest point. During the past ten or twelve years the deaths from typhus and typhoid fevers have been reduced from 635 to 68, or from 1.83 per 1,000 of the population to 0.18, and by very regular reduction, as will be seen from the following table taken from the report of the officer of health of Manchester for 1881:

Years.	Number of deaths.	Rate per 1,000 of the population.
1868.....	635	1.83
1869.....	403	1.16
1870.....	302	1.13
1871.....	282	0.80
1872.....	242	0.68
1873.....	232	0.66
1874.....	188	0.53
1875.....	177	0.50
1876.....	225	0.63
1877.....	164	0.46
1878.....	115	0.32
1879.....	68	0.18

Dr. John Leigh, the health officer of Manchester, informs me that he believes the next generation of operatives will be much better educated than the present—have better habits, better amusements, etc. This condition he asserts is now coming as the results of education, reading-clubs, coffee-rooms, etc.

Perhaps Oldham, England, is the most emphatic type of the factory town; it has a population of nearly 115,000; its factories are mostly devoted to spinning; it has about 250 factories, running over 10,000,000 spindles, or nearly as many as the whole United States, and is often quoted as the largest factory town in the world. The population of Oldham is stated by the registrar-general to be 112,176, dating to the middle of 1881. It may be well, as showing the growth of the borough, to give the various totals, from 1851 to 1881, thus: 1851, 52,820; 1861, 72,333; 1871, 82,629; 1881, 112,176.

The following table shows the mortality rate of Oldham, in comparison with several places in England having different kinds of manufactures, or, in some instances, but few:

Towns.	Estimated population in 1881.	Deaths.		
		Weekly average, 1880.	Registered in the week.	Annual rate per 1,000.
London	3,608,774	1,560	1,452	19.8
Oldham	112,176	51	40	22.8
Liverpool	353,988	285	257	24.2
Manchester	341,269	177	146	22.3
Salford	177,700	92	67	19.7
Newcastle	145,675	63	56	20.1
Leeds	310,490	129	123	20.7
Sheffield	285,623	123	123	22.5
Bradford	184,037	79	65	18.4
Hull	155,161	68	52	14.1
Birmingham	402,296	157	121	15.7
Bristol		82	68	17.1

All these facts only seem to emphasize the conclusion already stated, and lead me to add that manufacturing concerns and municipal governments acting together can render factory employment as healthful as any mechanical labor can be; and that if this is not done there is culpable negligence somewhere. Low health conditions in factory places, where such conditions exist, are not due to the factory system, but to negligence either on the part of proprietors or of employes; usually, as I have said, on the part of both parties; but in too many cases on the part of the operatives themselves, who sometimes shamefully abuse a good, clean tenement, in spite of all the owner can do to keep it in order. When a landlord is permitted to erect a tenement house in such a way that the ventilators from the privies of an adjoining block discharge their foul gases under the windows of the new structure, as I have found in some instances in an American factory town, blame of ill-health on the part of the operatives occupying such places must not be laid wholly upon employer and employes, but upon legislatures as well, for not giving boards of health the power to interpose before an epidemic occurs.

Law is fast asserting itself in the interest of the health of the people, and it is the knowledge of such conditions as I have referred to which stimulates and encourages the law-makers to take advanced ground in sanitary matters.

C.—*The factory system is productive of intemperance, unthrift, and poverty.*

If it could be shown that the factory leads to intemperate habits, it would follow conclusively that it is productive of unthrift and poverty, the sure conditions resulting from intemperance. It is true that a great deal of drunkenness exists in factory towns and among factory operatives; it is not true that the factory is the creator of this. On the other hand, the investigations of Louis Reybaud, a member of the Institute of France, conducted in the name of the Academy of Moral and Political Science, relative to the condition of workingmen in various branches of industry, prove conclusively that the factory operatives are far more temperate than those engaged under the domestic system. The industries of France afford the very best opportunities for comparative study in this respect. In the United States drunkenness has never been much of an obstacle in the way of the success of the factory. Factory towns support a large number of common laborers, and the intemperance of this class is usually attributed to the factory. It must be frankly and freely admitted that whatever of unthrift there may be among factory operatives is to a very large degree due to the habit of beer-drinking, but employers, overseers, and even the operatives themselves are creating an *esprit de corps* which does not allow a man to remain in a factory when in the habit of getting drunk. This sentiment is on the increase, and as soon as proprietors will shut their doors to all habitual drunkards, as many have shut them already, the factory will become the most powerful agent we have for the prevention of intemperance. Its power in this direction is far greater than is generally known.

Unthrift and poverty do not belong to the factory system of industry to any such extent as they belonged to the system which it supplanted; indeed, the poverty existing at the birth of the factory system was one of the most potent influences which enabled it to grow. This is the historical view, not the sentimental one. There was a time, within a quarter of a century, too, when the drunkenness of factory operatives constituted a serious obstacle to the successful operation of factories in Great Britain and on the continent. Sunday was a day of debauch, and many, spinners especially, did not get into condition for work before Tuesday or Wednesday. It is the unanimous testimony of manufacturers in the leading factory towns of Great Britain that drunkenness is not now a serious obstacle to the running of their works, and in many places on the continent the same testimony is given.

The savings-bank records of factory towns in Europe prove the assertions as to poverty and unthrift to be groundless so far as the Old World is concerned, and too many evidences exist here to require especial argument against such assertions. I know full well how hard is the struggle many make to support their families, and that beer-drinking is the chief cause, in too many cases, of the severity of the struggle; but it cannot be shown that the factory

system produces either intemperance or unthrift. If we take the French Canadian factory population of the United States upon which to base a conclusion, we cannot arrive at any other result than that the factory stimulates thrift and prosperity. The United States afford the very best proof possible of the thriftiness of factory people, in this, that within a generation the nationality of the cotton-factory operatives has changed from American and English to English and Irish, largely the latter, and now to French Canadian; with each change has come a class seeking an improvement of condition, and as the improvement has come the old have stepped up from the mills to higher occupations, shop-keeping, farming, etc., and the new have stepped in, and as their children become better educated than their parents, others coming to our shores will crowd them out of the factories that they, the newcomers, may receive the advantages which have given their predecessors a push along in the way of progress.

D.—*It feeds prostitution and swells the criminal lists.*

The charge that the factory feeds prostitution and swells the criminal lists is absolutely unfounded. This impression first grew from the condition of Manchester, England, where a large cellarage population, which has entirely disappeared, was attributed to the factory. It has been shown by the returns from the penitentiary of Manchester that the ranks of prostitution were not fed from the factory, 8 out of 50 coming from the factory and 29 out of 50 from domestic service. An extensive examination of the criminal records of a large number of British factory towns discloses the fact that neither the ranks of prostitution nor the criminal lists are increased to such extent from the factory population of those towns as from other classes. This is equally true in this country. It should be borne in mind that regular employment is conducive to regular living, and that regular employment does not, as a rule, harmonize with a life of prostitution, intemperance, and crime. The virtue of the factory women of this country and of Europe will compare favorably with that of any other class, and much better than with many departments of social life. A manager connected with the establishments of the Messrs. Coates, at Paisley, and who had been in service there forty years, informed me that during that period no one had ever gone from those works into a life of prostitution. Certainly there is nothing in factory employment conducive to vicious lives.

Much has been said by writers, in treating of the factory, of Manchester, and its "hoodlum" class is cited as the operative population. Nothing could be farther from the truth; it was the miserable hovel tenantry outside the factory workers which made Manchester's criminal lists in the past so large. Another common mistake has been made in taking a place like Manchester by which to judge the factory system. Manchester is not purely a factory town.

Most of the attempts to support charges of the abundance of crime and prostitution in operative towns in England by statistical tables have been based on the supposition that the great town nuisances are connected with the factory system. To ascertain the true facts as to crime and the factory system it is necessary to know the ratio of factory operatives to the whole population and the ratio of the number of criminals from the operative ranks to the whole number of criminals. In this investigation I have sought to learn these ratios, but the police departments of British cities and towns, while entering in the records the occupations of parties arrested, do not publish these occupations. Manchester is an exception. The statements contained in the tables relating to crime in factory towns in England I have taken from the original records. In the United States I have found but few factory places where the occupations of parties arrested are entered even, and then they are rarely reported. The statistics used in this report have been furnished me by the city marshals or chiefs of police of the places for which statistics are given. The following table exhibits the facts for Manchester, and it will be seen that in no year was the proportion of arrests of factory operatives to the whole number of arrests equal to the proportion of factory operatives to the whole population. I have used arrests instead of convictions, because I could not trace the parties through to conviction, but about the same percentage of all parties arrested were discharged from arrest or acquitted upon trial; so the arrests, as used for all, furnish a good basis for conclusions:

Year.	Total number taken into custody.	Total number of factory operatives taken into custody.			At work.			Out of work.			Percent- age of fac- tory oper- atives 20 years of age and up- ward to whole pop- ulation.	Percent- age of ar- rests of fac- tory oper- atives to whole num- ber of ar- rests.
		Both sexes.	Males.	Females.	Both sexes.	Males.	Females.	Both sexes.	Males.	Females.		
1874.....	20, 103	1, 889	723	1, 166	1, 167	596	661	722	217	505	14	9.3
1875.....	20, 828	2, 574	789	1, 785	1, 659	565	1, 094	915	224	691	14	12.8
1876.....	19, 750	2, 053	560	1, 493	1, 312	395	917	741	165	576	14	10.3
1877.....	18, 917	1, 649	426	1, 223	1, 010	290	720	639	186	503	14	8.7
1878.....	18, 638	1, 584	408	1, 176	959	284	725	625	174	451	14	8.4
1879.....	18, 657	1, 593	438	1, 155	884	235	649	709	293	500	14	8.5
1880.....	20, 256	1, 820	515	1, 305	998	276	722	822	299	583	14	8.9
Total.....	137, 149	13, 162	3, 859	9, 303	7, 980	2, 501	5, 488	5, 173	1, 358	3, 815	14	9.5

The next table shows the facts as to arrests, as described for important factory towns in England, Scotland, and Ireland. In Oldham and Blackburn the ratio of arrests of factory workers is much greater than the ratio of

factory operatives to the whole population. This disproportion is the result of minor misdemeanors, and not of crimes, as I was informed by the chief constables of these towns:

Name of place.	Total number taken into custody during year.	Total number of factory operatives taken into custody.	Percentage of factory operatives, 20 years of age and upward, to whole population.	Percentage of arrests of factory operatives to whole number of arrests.
Oldham, England.....	2,484	748	21.5	30.1
Huddersfield, England.....	1,565	119	18.5	7.6
Halifax, England.....	1,850	188	16.5	10.1
Blackburn, England.....	1,738	606	17.6	34.8
Bradford, England.....	2,432	442	18.4	18.1
Ashton-under-Lyne, England.....	671	101	23.9	15.0
Salford, England.....	4,521	622	11.7	13.7
Bolton, England.....	1,291	173	16.7	13.4
Belfast, Ireland.....	11,581	487	....	4.2
Dundee, Scotland.....	6,620	1,425	18.9	21.5
Glasgow, Scotland.....	* 858	* 33	17.7	3.8

* One week.

What has been said of Great Britain is equally true of France and Germany, so far as I have been able to learn. M. Reybaud found a constantly-decreasing criminal list among constantly-increasing factory populations. If the factories have a bad influence on morals, crime should remain in proportion as the number of factory workers increases. The contrary, however, is the case in France, for in the district alluded to by Reybaud (*a*) the criminal list in 1855 was 2,214, while in 1859 it had, by steady reduction, fallen to 1,654, and in a constantly-increasing factory population.

In Chemnitz, in Saxony, the director of police informed me that in 1876 the total number of arrests was 2,884; in 1880 it was 2,699, of which number 2,366 were males, and only 333 females, although the larger proportion of operatives are females, and the operative population of Chemnitz is constantly increasing. The operatives of Chemnitz rarely get drunk.

The exhibit for representative factory towns in the United States is equally gratifying. In Lewiston, Maine, the factory population is 34 per cent. of the whole population over ten years of age. The following table shows the arrests from 1870 to 1881, inclusive, and the proportion of arrests of factory operatives of the whole number of arrests in each year:

Year.	Whole number of arrests.	Number of factory operatives arrested.	Percentage of arrests of factory operatives to whole number of arrests.
1870.....	203	19	9.3
1871.....	223	28	12.5
1872.....	267	22	8.2
1873.....	291	27	9.2
1874.....	546	51	9.3
1875.....	792	54	6.8
1876.....	544	43	7.9
1877.....	443	33	7.4
1878.....	407	37	9.0
1879.....	279	30	10.7
1880.....	283	24	8.4
1881.....	242	18	7.4
Total.....	4,520	386	8.5

The next table is for Pawtucket, Rhode Island, whose factory population is 21 per cent. of the whole over ten years of age:

Year.	Whole number of arrests.	Number of factory operatives arrested.	Percentage of arrests of factory operatives to whole number of arrests.
1876.....	783	79	10.0
1877.....	578	59	10.2
1878.....	635	64	10.0
1879.....	540	77	14.2
1880.....	638	52	8.1
1881.....	586	77	13.1
1882.....	671	103	15.3
Total.....	4,426	511	11.5

a See *Le Coton*, by Louis Reybaud.

The police records of Fall River, Massachusetts, one of the largest textile cities in America, are very perfect, and afford the following facts:

Year.	Whole number of arrests.	Number of factory operatives arrested.	Percentage of arrests of factory operatives to whole number of arrests.
1874.....	2, 116	631	29+
1875.....	2, 497	748	29+
1876.....	2, 288	773	33+
1877.....	2, 332	848	36+
1878.....	2, 141	759	35+
1879.....	1, 591	627	39+
1880.....	1, 853	632	34+
1881*.....	1, 729	569	32+
Total.....	16, 547	5, 587	33+

* Ten months.

The operatives, as the above table shows, supply 33+ per cent. of the whole number of arrests, while they constitute 38+ per cent. of the whole population over ten years of age.

In Lowell the records show occupations of persons arrested for 1880 and 1881; for the latter year I have the report for ten months only. The factory population of Lowell is 30+ per cent. of the whole population over ten years of age; the mill operatives in 1880 furnished 22+ per cent., and in 1881, for ten months, 24+ per cent. of the whole number of persons arrested. In the great shoe-factory city of Lynn, Massachusetts, the shoe factories furnish 28+ per cent. of the whole population over ten years of age, and 24 per cent. of the persons arrested.

The following statement is from the city marshal of Nashua, New Hampshire, an important factory city:

CITY MARSHAL'S OFFICE,
Nashua, New Hampshire, November 4, 1882.

CARROLL D. WRIGHT,
Special Agent, U. S. Census.

DEAR SIR: In reply to your inquiry relative to the extent to which the factory operatives of this city contribute to our criminal list, I would say that although we keep no record of occupations, yet I have made a careful examination of my criminal docket for the six months ending November 1, 1882, and estimate that about 7 per cent. of those arraigned before our police court during that time were factory operatives. From my personal knowledge of the parties, and on consultation with my officers, I think this estimate is very nearly correct.

Yours, truly,

JAMES H. HUNT,
City Marshal, Nashua, New Hampshire.

The following statement is from one of the oldest factories in New England:

We have no statistics, but during the last ten years we have employed at this establishment about 450 operatives; during that time one young man has been convicted of breaking and entering a store and sentenced to state prison, and a young lad who was concerned with him was sent to the reform school. This, so far as I remember, and I have the memory of others to assist me, is the sole case of crime that has been prosecuted. There was one other case of stealing, not prosecuted, and there have been a few brawls, drink at the bottom of them, but the parties have settled among themselves on getting sober. As a whole, our community is very orderly. There are some who drink, and any trouble there is comes from them. We bear it to a certain point, but if the offense is repeated, after warning, we discharge the offending parties.

The foregoing facts are quite representative in their character, and they dispel the prevailing impression that the bulk of the crime of manufacturing towns comes from the factory. It is true that the new system of industry, by securing a better competency, fights bad instincts with the very best of weapons—the interest of those it employs. In large towns the factories have had to contend with all the nuisances which a rapid increase of population beyond the due limits of accommodation must necessarily produce. Notwithstanding the very poor material with which the factory system is often required to deal, the contest for civilization is progressing successfully through its influence, and when the power of moral forces is universally recognized in the conduct of industrial enterprises the ratio of arrests of factory workers to the whole number of arrests will be much less than it is now.

I cannot give statistics relative to prostitution, but all my inquiries have developed but one opinion, and that is that the factory does not feed prostitution to an undue degree. This is true of all countries. A factory girl whose character is not good finds herself in an atmosphere uncongenial at first, but finally so chilling that she leaves the establishment. What there is in factory employment, other than other employments, which should tend to prostitution, it is difficult to understand. Until some effort is made to prove the contrary, I must conclude that the impression generally entertained in this particular is the result of prejudice or of ignorance of the true nature of the work.

E.—*It tends to intellectual degeneracy.*

In considering this objection, which many bring against the factory system, I cannot use statistical data, but am obliged to rely to some extent upon the opinions of those whose positions entitle their statements to the fullest confidence. I am able to assert, however, that no opinion of my own is stated which is not the result of my own observations and investigations; that is, while the treatment of the above objection appears to be statements of opinion only, the statements are really facts. These statements will apply to England as well as to America, although it is quite impossible to compare the intellectual progress of English and American factory operatives; for while England has had her own race constantly to deal with, America has had to deal with operatives from all lands congregated in her factory towns.

The impression that the factory system tends to intellectual degeneracy I believe to be entirely unfounded. Through the simplification of mechanical processes ignorant labor is congregated in factory centers, but it is not created or induced by the factory. The fact that the ignorant masses are enabled by the factory to engage in what it once took skilled labor to perform has given the widespread impression that factory labor has degraded the skilled, when the truth is it has lifted the unskilled; and this is the inevitable result of the factory everywhere. It is a curious fact that after the factory system was inaugurated in England, and the poor, degraded, and excessively ignorant pauper labor of the southern agricultural districts was lifted up to respectable and self-supporting employment and to comparative self-respect, the factory was held to be responsible for the ignorance which it found; and so the laws of England, and in later years of America too, have insisted upon the education of children as a prerequisite to factory employment. This may explain the superior intelligence of the children of factory towns in England as compared with those of agricultural localities. The half-timers of England and the factory children of America are laying a foundation, if proprietors will only recognize the power of moral forces in the conduct of industrial enterprises, which will in another quarter of a century change the social complexion of our factory towns. If the advantages afforded in factory towns will stimulate rural districts to emulate the work of providing for the proper amusement and instruction of children and young people, perhaps the constant depletion of such places may be checked and the inhabitants of crowded towns be attracted to the soil. The mental friction of the factory is not without its healthful influences. Certainly it is better for the persons engaged than the filthy little shops, occupied by a few foul-talking people, which characterized the domestic system. Instead of dwarfing the minds and the skill of the skillful, as is often alleged, the factory enlarges the minds and increases the power of the unskillful. Louis Reybaud, to whose investigations I have referred, testifies that the abasement of intelligence, which is said to follow in proportion as tasks are subdivided, is a conjecture rather than a truth shown by experience, and is presumed not proven. To prove abasement from factory employment it would be necessary to show, for example, that the hand weaver, who throws the shuttle and gives motion to the loom, is of a class superior to the machine weaver, who superintends such double movement. Employment of the muscles in several operations instead of one has nothing in it to elevate the faculties, and this is about all the opponents of the factory claim. In their view, says Reybaud again, "the most imperfect machines, those which require the most effort, are the ones which sharpen the intellectual faculties to the greatest degree. We can easily see where this argument would carry us if pushed to the end." There is no abasement; on the contrary, it is from the influences resulting from the factory system that we discern the elevation of an increased proportion of working people from the position of unskilled to that of skilled laborers, and the opening of an adequate field of remunerative employment to women, two of the most important improvements in the condition of the working masses which could be desired; and these results are stimulated by the factory system.

The impression that the factory degrades the intellect, so far as this country is concerned, springs from the remembrance of the Lowell factory girl, engaged in her literary work, and a contemplation of the present factory girl. We are deceived by this. It requires but a superficial consideration to understand that forty years ago the cotton factories of this country were filled with English and American operatives of a high grade of intelligence. The American girls came from our farming districts, and were the daughters, in many instances, of the best citizens. As machinery was improved, or the American girl was crowded into higher pursuits, the Irish came in and the former operatives stepped out, but did not thereby deteriorate; but the Irish girl stepped up in the grade of employment. Now, within a decade or two, the French Canadian has been successful in displacing, and rapidly, too, the Irish operative, and the latter has not deteriorated thereby; but the French Canadians have taken a step in advance of their old condition. When they go back to their own country, as many do, they carry back with them the results, whatever they are, of contact with a new system, and the effects of such contact will tell upon their children, if not upon themselves. The factory brings progress and intelligence, and establishes at the centers the library, the public hall, the lyceum, and the concert. Such institutions, in the nature of things, could not have found a lodgment under the domestic system. It is in evidence that the book trade of Great Britain flourishes and fades with her manufactures in closest sympathy, while it is nearly indifferent to the good or bad state of her agriculture.

The domestic system could not deal with machinery. While machinery in one sense means the factory system, it is really the type and representative of the civilization of this period so far as mechanics are concerned, because

it embodies the concentrated, clearly wrought-out thought of the age. There is something educational in the very presence of machinery. A large proportion of the machines made use of under the factory system of industry were invented by workmen who have been desirous of finding out easier and readier means of performing their accustomed task. These things stimulate industry, which in turn stimulates frugality.

One of the positive results of the factory system has been to enable men to secure a livelihood in fewer hours than of old; this means intellectual advancement, for as the time required to earn a living grows shorter civilization grows up. The most ignorant factory operative of to-day is more than the peer of the skilled workman of a few generations ago in all that goes to make up condition—environment. The fact that the lowest grade of operatives can now be employed in our factories does not signify more ignorance, but a raising of the lowest to higher employments. This process will be repeated again and again, unless society is compelled to take up what is called a simpler system. We should not forget that the machine is the servant of the workman, and neither his competitor nor his master. This process is constantly narrowing the limits of the class which occupies the lowest step in the progress of society. This mission alone stamps the system as an active element in the moral elevation of the race. The factory system does not tend to intellectual degeneracy.

I have considered the main objections which are usually brought against the factory system, and have compared it with the system it supplanted. Its evils come mostly under the heads enumerated, but they are evils which attend the development of the system; they are not its results. Before the system can be condemned as a system it must be shown that it is worse than that which it displaced. This cannot be done. We need not apologize for the weaknesses of the present system, for they come mostly from ignorance, not from the system itself. Under enlightened men it becomes everywhere a great moral power, and a positive, active, and potential element in the processes of civilization. But, admitting every possible domestic evil which accompanies low social conditions—the neglect of young children, and consequent high rates of infant mortality, the physical degeneracy which follows mechanical employments when engaged in by married women—and yet none of these can be attributed to the factory system as the creator of such evils. It cannot be held responsible for their creation. They belong to the ignorance of the substratum of society which the factory system is constantly lifting to another and a higher plane, thereby lessening, instead of increasing, the misery of the world.

The softening of the misery caused by the change in systems has occurred but in subtle ways. Transition stages are always harsh upon the generation that experiences them; the great point is that they should be productive of good results in the end. The mind recoils at the contemplation of the conditions which the vast increase of population would have imposed without the factory system.

It is a sad law, perhaps, but it is an invariable law, that industry in its march takes no account of the positions that it overturns nor of the destinies that it modifies. We must keep step with its progress or be left upon the road. It always accomplishes its work, which is to make better goods at a lower price, to supply more wants and also those of a better order, not with regard for any class, but having in view the whole human race. Industry is this, or it is not industry; true to its instincts, it has no sentiment in it unless it is for its own interest; and yet such is the harmony of things, when they are abandoned to their natural course, notwithstanding the selfishness of industry, directed to its own good, it turns finally to secure the good of all, and while requiring service for itself, it serves at the same time by virtue of its resources and its power. (*a*)

INFLUENCE OF THE FACTORY SYSTEM UPON WAGES, PRICES, AND PRODUCTION.

The economic advantages of the factory system must be looked for in the increase of wages and production and the decrease in the prices of goods produced. If the purchasing power of wages, so far at least as the products of the factory and the leading necessities of life are concerned, has not been enhanced, the new system of industry has not yet wrought the good it is capable of working. Authoritative statistics from original and worthy sources, as well as from trustworthy writers and investigators, must answer the question. It is the province of another officer (*b*) of the Census Bureau to compile and analyze the general statistics of wages; but, so far as wages are or have been affected by the factory system, they come legitimately within my consideration.

Here, again, I shall take the cotton industry as illustrative of the influence of the system.

The abnormal condition surrounding the hand weaver of England during the last quarter of the last century is often quoted to show that the workingman of to-day is not so well off as was the workingman one hundred years ago. In some specific departments and under some specific conditions this may be true, but it is impossible to prove what would have been had not something else occurred. The question as to the influence of the factory system upon wages is a difficult one to solve. This difficulty becomes, so far as the cotton trade is concerned, more complicated when we consider the wages of hand-loom weavers after the fly-shuttle came into use, and one weaver could do the work of two. The two tables on page 36 show the rapid declension of wages in England from 1795 to 1834. The first table was furnished the committee of the house of commons, on hand-loom weavers, in July, 1834, by Mr. John Makin, a manufacturer of Bolton, England. The second table was furnished the committee on manufactures from the books of Manchester manufacturers.

a *Le Coton*. Reybaud.

b Joseph D. Weeks, esq., special agent on wages.

The following table shows the wages paid for weaving a six-quarter 60-reed cambric, 120 picks in one inch, in Bolton:

Year.	Wages.	Year.	Wages.	Year.	Wages.	Year.	Wages.
1795....	\$7 98	1805....	\$6 00	1815....	\$3 36	1825....	\$2 04
1796....	7 98	1806....	5 28	1816....	2 88	1826....	1 68
1797....	6 06	1807....	4 32	1817....	2 16	1827....	1 56
1798....	7 20	1808....	3 60	1818....	2 16	1828....	1 44
1799....	6 00	1809....	3 84	1819....	2 28	1829....	1 32
1800....	6 00	1810....	4 68	1820....	2 16	1830....	1 32
1801....	6 00	1811....	3 36	1821....	2 04	1831....	1 32
1802....	6 06	1812....	3 36	1822....	2 04	1832....	1 32
1803....	5 76	1813....	3 00	1823....	2 04	1833....	1 32
1804....	5 76	1814....	5 76	1824....	2 04	1834....	* 1 32

* After making deductions for expenses, the clear wages of the weaver are only 99 cents per week.

The following table shows the wages paid for weaving the second quality of 74's calico in the neighborhood of Burnley and Skipton:

Year.	Wages.	Year.	Wages.	Year.	Wages.	Year.	Wages.
1802....	\$2 06	1810....	\$1 48	1818....	\$0 78	1826....	\$0 30
1803....	1 68	1811....	90	1819....	58	1827....	34
1804....	1 44	1812....	1 10	1820....	62	1828....	40
1805....	1 36	1813....	1 34	1821....	70	1829....	26
1806....	1 30	1814....	1 40	1822....	62	1830....	34
1807....	1 14	1815....	98	1823....	53	1831....	38
1808....	66	1816....	68	1824....	44	1832....	31
1809....	60	1817....	64	1825....	53	1833....	33

Mr. Edward Baines, whose work on cotton manufactures I have already quoted, writing in 1835, and on the facts given the committees referred to, says:

These tables naturally draw our attention to the occasions on which the great fall in the wages of weavers took place and to the immediate causes of that fall. It may first be observed that the wages of weaving had previously risen even more rapidly than they afterward fell. Before the invention of the fly-shuttle and the spinning-machines the weavers' wages were very moderate; and when the greater difficulty of weaving without the fly-shuttle and the greater strength required by the coarse goods then made are considered, it may be doubted whether the weavers then earned higher wages in proportion to their labor than at present. The fly-shuttle, which enabled a weaver to turn out twice as many webs as before, was the first cause of a material improvement in wages. As the price of goods did not fall in proportion to the increased facility of production, the weaver gained considerably by the invention. Then came in rapid succession the grand inventions of the spinning-jenny, the water-frame, and the mule, which caused the unparalleled extension of the manufacture we have already seen and enabled the cotton weavers to produce a great variety of delicate fabrics before unknown to their looms. Calicoes, muslins, cambrics, nankeens, and many other tissues began to be woven in England, and as they could be afforded much below the prices formerly paid for the Indian goods of those qualities the demand for them was great and urgent, weavers were in the utmost request, and their wages rose to a rate exceeding those of any other class of workmen; common weavers of steady and industrious habits soon rose into manufacturers, and many fortunes were made at the loom. This induced multitudes to learn the trade, and it continued to attract hands long after the demand was satisfied. An employment so easily learned and so handsomely remunerated became inevitably surcharged with laborers. Then came the reaction. Wages must have fallen even with an unvarying trade, but at every shock which the manufacture received from external or internal circumstances a great and sudden decline took place, which, from the constant pressure of a surplus body of laborers, could never be recovered.

From 1795 to 1807, as will be seen by the above tables, wages gradually receded, notwithstanding a depreciating currency, except in the year 1802, when the peace of Amiens opened the markets of Europe for a short space to English commodities.

The year 1808 was that of the American embargo, when an extremely small supply of cotton reached this country, and thousands of weavers were thrown out of employment. Hence the price of weaving calicoes fell from 4s. 9d. in 1807 to 2s. 9d. in 1808. The revival of trade, the flush of paper money, and the famine price of corn raised wages again, and they were sustained by the reopening of the continental markets and the quantities of English goods poured in upon them. In the year 1814 the national fever was at its height. Before 1816 all its debilitating consequences were felt. The foreign markets were glutted; the merchants received no returns; the exchanges fell; government issued no more orders to the manufacturers; the American war closed to us a large market and deprived us of the supply of cotton-wool; the Bank of England rapidly contracted its issues; the paper bubble burst; banks and commercial men failed in fearful numbers; a wretched harvest plunged the farmers into alarm and distress, and many of the disbanded soldiers and sailors, turning to the loom as the easiest trade they could learn, came into competition with the weavers. Under the accumulated disasters of this crisis the weavers received their severest blow. The wages of cambric weavers fell from 24s. in 1814 to 12s. in 1816, and those of calico weavers from 5s. 10d. in the former year to 2s. 10d. in the latter. Before they could in any degree recover the power-loom rose into formidable competition with the hand-loom. The commercial crisis of 1825-26 was the final calamity; and thus, under reiterated strokes, the hand-loom weavers have been pressed down, and have never, till within the last two years, had even a glimpse of improvement. During that time their wages, have risen about 10 or 15 per cent., but the weavers still remain the most depressed and degraded class of English laborers.

These were the occasions and direct causes of the lamentable fall in weavers' wages; but their effects could not have been so serious if there had not been permanent causes, belonging to the nature of the employment itself. Of these, the first and grand cause is the easy nature of the employment. The weaving of calicoes is one of the simplest of manual operations, understood in a few moments, and completely learned in a few weeks. It requires so little strength or skill that a child eight or ten years of age may practice it. A man brought up to any other employment may also very shortly learn to weave. From the facility of learning the trade, and from its being

carried on under the weaver's own roof, he naturally teaches his children to weave as soon as they can tread the treadles, if he cannot obtain places for them in a factory. Thus they begin at a very early age to add to the earnings of the family, and the wife also toils in the same way to increase their scanty pittance. But it is obvious that that which is only a child's labor can be remunerated only by a child's wages. There are large departments of hand-loom weaving which are almost entirely given up to women and children, and their wages go far to regulate all the rest. The men, where they are able, procure better kinds of work; and where they are not able, they must put up with the most paltry earnings.

The second cause for the low wages of weavers is that their employment is in some respects more agreeable, as laying them under less restraint than factory labor. Being carried on in their own cottages, their time is at their own command; they may begin and leave off work at their pleasure; they are not bound punctually to obey the summons of the factory bell; if they are so disposed, they can quit their loom for the public-house, or to lounge in the street, or to accept some other job, and then, when urged by necessity, they may make up for lost time by a great exertion. In short, they are more independent than factory operatives; they are their own masters; they receive their materials, and sometimes do not take back the web for several weeks; and—what is a lamentable, but far too common occurrence—they have the power, in case of urgent necessity or strong temptation, to embezzle a few cops of their employer's web in order to buy bread or ale. All this makes the weaver's occupation more seductive to men of idle, irregular, and dissipated habits than other occupations. It is a dear-bought, miserable liberty, but, like poaching or smuggling, it is more congenial to some tastes than working under precise restrictions for twice the remuneration. The mention of this unquestionable fact by no means implies a charge against the weavers that they are all of loose habits and morals; but it helps to account for many continuing at the loom, notwithstanding the wretchedness of their circumstances.

I have given Mr. Baines' opinion at length because he has stated the case so clearly. I have fully verified his statements in every way possible. The above tables have been quoted simply that they should not be used to refute subsequent conclusions, and because mechanical weaving has been generally alleged as the principal cause of the distress of the hand-loom weavers; the other causes have been much more efficient, because a great part of the distress was produced before the power-loom came into use. It is true that the fierce competition between the hand- and the power-loom weavers, after the advent of the latter, accelerated the decline of the former and kept the wages of both classes at a very low point, for each tried to cut the throats of the other, industrially, if not physically. The true period from which to treat of wages under the factory system in Great Britain is, from the nature of things, as described, from 1830 to 1835, or half a century ago. In this country the period from 1815 to 1820 would be the true one, because the condition of things related of the hand-loom weavers of England never existed here, the factory being hailed as a boon by the people of America.

From 1833 the wages of factory operatives in Great Britain may be determined with sufficient accuracy to entitle the data given to our confidence. As already stated, at this period hand-loom weavers were in a deplorable condition; this was true of large towns and of villages; their wages were a miserable pittance, and they worked in confined and unwholesome dwellings. On the other hand, there was no large class of workmen in the kingdom receiving better wages than the operatives in cotton factories. The average earnings in 1833 of 67,819 employes, consisting of 19,247 men, 20,962 women, and 27,610 children, were 10s. 5½d. (\$2 51) per week for all, indiscriminately, men, women, and children. The respective earnings of different classes of mill operatives will be seen from the following table, (a) which shows the average net weekly earnings of the different classes of operatives in the cotton factories of Manchester, Stockport, Duckenfield, Staleybridge, Hyde, Tintwistle, Oldham, Bolton, etc., drawn from the returns of 151 mills, employing 48,645 persons, in May, 1833:

Denomination of process in which employed.	Class of operatives.	Classification as respects age and sex.	Average weekly net earnings.
Cleaning and spreading cotton.....		Male and female adults and some non-adults.....	\$1 98'
Carding.....	Carders, or overlookers.....	Male adults.....	5 64'
	Jack-frame tenters.....	Principally female adults.....	1 92'
	Bobbin-frame tenters.....	Principally female adults.....	1 70'
	Drawing tenters.....	Principally female adults.....	1 80'
Mule spinning.....	Overlookers.....	Male adults.....	7 02'
	Spinners.....	Male and female adults, but principally the former.....	6 16'
	Piecers.....	Male and female adults, and non-adults, but principally the latter.....	1 30'
Throstle spinning.....	Scavengers.....	Male and female non-adults.....	70'
	Overlookers.....	Male adults.....	5 37'
	Spinners.....	Female adults and non-adults.....	1 86'
Weaving.....	Overlookers.....	Male adults.....	6 31'
	Warpers.....	Male and female adults.....	2 04'
	Weavers.....	Male and female adults, male and female non-adults, but chiefly females.....	2 60'
Reeling.....	Dressers.....	Male adults.....	6 68'
Roller covering.....	Reelers.....	Female adults and non-adults.....	1 91'
Attending the steam-engine, and making machines.	Roller coverers.....	Male and female adults.....	2 91'
	Engineers, firemen, mechanics, etc.....	Male adults.....	4 92'

The rates given above and the statements preceding the table are fully corroborated by the following table, prepared by the chamber of commerce of Manchester and published by the board of trade in the tables of revenue, which gives a statement of the weekly rates of wages paid to the undermentioned description of workmen in Manchester in the year 1832:

Spinners, men	\$4 80 to \$6 00
Spinners, women	2 40 to 3 60
Stretchers	6 00 to 6 24
Piecers, boys and girls	1 10 to 1 68
Scavengers	36 to 64
In the card-room:	
Men	3 48 to 4 08
Young women	2 16 to 2 28
Children	1 44 to 1 68
Throstle spinners	1 20 to 2 28
Reelers	1 68 to 2 16
Weavers by power:	
Men	3 12 to 4 04
Women	1 92 to 2 88
Dressers, men	6 72 to 7 20
Winders and warpers	1 92 to 2 64
Mechanics	5 76 to 6 24
Weaving by hand:	
Nankeens, fancy quality, woven by men	2 16 to 3 60
Nankeens, common quality, woven by children or women	1 44 to 1 92
Nankeens, best quality, woven by men	2 40 to 3 12
Checks, fancy quality, woven by men	1 68 to 1 80
Checks, common quality, woven by children	1 44 to 1 68
Cambrics, woven by all ages	1 44 to 1 56
Quiltings, woven by men and women	2 16 to 2 88
Fustian cutters, all ages	2 40 to 2 88
Machine makers, men	6 24 to 7 20
Iron founders, men	6 72 to 7 20
Dyers and dressers, men	3 60 to 4 80
Dyers and dressers, young men	2 88 to 3 36
Dyers and dressers, boys	1 20 to 2 40
Tailors, men	4 32 to
Porters	3 36 to 3 60
Packers	4 80 to
Shoemakers	3 60 to 3 84
Whitesmiths	5 28 to 5 76
Sawyers	5 76 to 6 72
Carpenters	5 76 to
Stonemasons	4 32 to 5 28
Bricklayers	4 08 to 4 80
Bricklayers' laborers	2 88 to
Painters	4 32 to
Slaters, per day	88 to
Plasterers	4 56 to 5 04
Spademen	2 40 to 3 60

The rates of wages paid males and females, according to ages, in 1832, in the cotton-mills of Lancashire were given by the factory commissioners in 1833 as follows:

Age.	MALES.		FEMALES.	
	Number employed.	Average weekly wages.	Number employed.	Average weekly wages.
Below 11.....	246	\$0 59	155	\$0 53
From 11 to 16..	1,169	1 00	1,123	1 02
16 to 21..	736	2 45	1,240	1 75
21 to 26..	612	4 13	780	2 02
26 to 31..	355	4 89	295	2 08
31 to 36..	215	5 45	100	2 11
36 to 41..	168	5 19	81	2 93
41 to 46..	98	4 87	38	2 23
46 to 51..	88	3 99	28	2 12
51 to 56..	41	3 92	4	2 01
56 to 61..	28	3 25	3	1 52
61 to 66..	8	3 26	1	1 44
66 to 71..	4	2 60	1	1 44
71 to 76..	1	4 82	.....	.....
76 to 81..	1	2 08	.....	.....
Total.....	3,770	.....	3,844	.....

The foregoing tables are sufficient to show the wages paid in cotton factories in England from 1830 to 1835, and the rates stated had not changed much for twenty years before that. Rates for Scotland were lower. It has been seen that the wages for Lancashire and Cheshire factory operatives of all ages, including men, women, and children, averaged 10s. 6d. per week, while in Glasgow the average was 8s. 1½d., this difference being due chiefly to the greater proportion of women and children employed in Glasgow; for the average weekly wages of the men were 21s. 11d., and the average wages of the youngest children 2s. The following table (a) gives the wages for different classes in Glasgow mills in April, 1832:

Work and wages of cotton spinners.	Fine numbers.	Coarse numbers.
Men on piece-work.....	At wheels containing from 252 to 300 spindles, earn \$1 08 per day.	At wheels from 180 to 300 spindles, earn from 84 cents to \$1 08 per day.
Women reelers and winders.....	Earn 32 cents per day.....	Earn 28 cents per day.
Lads and girls employed in the preparation-room, or as piecers to the spinners, and paid by the day.	From 14 to 17 years of age, earn 32 cents per day.....	The same as for fine numbers.
Children, as above.....	From 10 to 14 years of age, earn 20 cents per day.....	Earn 16 cents per day.
Children, as above.....	Under 10 years of age, earn 10 cents per day.....	Earn 8 cents per day.
Lads and girls.....		At wheels from 120 to 180 spindles, earn from 48 to 72 cents per day.

NOTE.—The wages of cotton spinners did not vary during the ten years preceding 1820, and but very little since that period. The prices quoted are all net to the workers.

It should be remembered that at this time (1830-'35) the hours of labor were 12 per day in factories for persons under eighteen years of age; but as such persons constituted a large proportion of the operatives, the same hours virtually applied to adults.

The four tables which follow show clearly the changes in wages and prices for the first generation of this century. The first two tables are from the reports of the commons' committee on manufactures, etc., already referred to, and the second two from the reports of the factory commissioners.

The following table shows the wages and work of fine cotton spinners, at different periods, from the wage-books of Mr. Thomas Houldsworth, of Manchester:

Years.	Work turned off by one spinner per week.		Wages per week.			Hours of work per week.	Prices from Greenwich hospital records.		Quantities which a week's net earnings would purchase.	
	Pounds.	Numbers.	Gross.	Piecers.	Net.		Flour per sack.*	Flesh per pound.	Pounds flour.	Pounds flesh.
1804.....	12	180	\$14 40	\$8 60	\$7 80	74 sup.	\$10 02	12 to 14	117	02½
	9	200	16 20	7 44	8 70	74 sup.	10 92	12 to 14	124	73
1814.....	18	180	17 28	0 60	10 08	74	16 92	10	175	07
	13½	200	21 60	7 20	14 40	74	16 92	10	239	00
1833.....	22½	180	13 12	5 04	8 08	69	10 80	12	210	07
	19	200	15 66	5 40	10 26	69	10 80	12	207	85

* The sack of flour was taken at 280 pounds.

The above is the result of an average of several men's work at the different periods. There were 111 spinners employed in the mill in 1833; their average net earnings were \$7 98 each per week. There were in the same mill 917 persons employed in card-rooms, doubling, ruling, and piecing; their net earnings averaged \$1 70 per week. To show the rate of wages at different periods in these departments, the following table has been obtained from the wage-books of the concern.

The following table gives the wages of carders, reelers, and doublers at different periods:

Occupations.	1806.	1811.	1815.	1818.	1824.	1833.
Card-room, males.....	\$3 60	\$3 60	\$8 72	\$3 60	\$3 60	\$3 60
Card-room, males.....	4 08	4 08	4 44	4 32	4 26	4 26
Card-room, males.....	8 40	8 40	9 00	9 60	9 60	7 20
Card-room, females.....	2 16	2 16	2 40	2 16	2 16	2 16
Reelers, females.....	4 56 to 7 20	3 60	3 60	3 60	3 60	2 88
Doublers, females.....	2 88	2 52	2 52	2 28	2 28	2 04

a From tables of revenue, commerce, etc., by board of trade.

Piecers' wages, with the exception of those of big piecers, who constituted one-third of the whole, did not vary sixpence per week within twenty years from 1814-'33. Big piecers' wages in 1833 were from \$2 04 to \$2 28; in 1814, from \$2 28 to \$2 52.

Mechanics' wages, blacksmiths, turners, filers, machine-makers, and fitters-up, were, in 1833, from \$6 48 to \$7 44 per week; within the twenty years (1814-'33) they had been as high as \$6 72 to \$8 40; but then they worked half an hour to one hour per day longer.

The following is a statement of the clear weekly average earnings of spinners, dressers, and weavers in the employ of Mr. Thomas Ashton, of Hyde, in the county of Chester, cotton manufacturer, in the years mentioned:

Description.	1816.	1821.	1826.	1831.	1832.
Spinners, first class.....	\$8 88	\$8 52	\$8 40	\$8 34	\$8 40
Spinners, second and third class.....	7 20	6 54	6 48	6 72	6 76
Spinners, fourth class.....				4 72	4 80
Dressers.....	7 20	7 20	7 20	7 32	7 32
Weavers.....	3 36	3 36	3 12	2 88	2 88

The weavers, all of whom were employed in attending the power-loom, were for the most part young girls.

In 1831 and the following year the total number of hands in Mr. Ashton's employ was 1,200, and their average earnings amounted to \$2 88 weekly for every description of hands, 52 weeks in each year.

The following table shows the average prices paid by Messrs. Ashton, of Hyde, for weaving $7\frac{1}{2}$ power-loom calico for each piece of 28 yards, and for uplands and Brazil cotton per pound, from which the same are made, with the average market price for which such pieces sold in the years undermentioned:

Year.	Weaving per piece.	Cotton per pound.	Market price per piece of 28 yards.	Year.	Weaving per piece.	Cotton per pound.	Market price per piece of 28 yards.
1814....	\$0 72	\$0 60	\$6 72	1823....	\$0 40	\$0 21	\$3 46
1815....	72	40	6 12	1824....	40	21	3 36
1816....	60	40	5 28	1825....	40	28	3 36 to 4 44
1817....	60	44	4 95	1826....	36	16	2 52
1818....	60	44	5 07	1827....	36	15	2 46
1819....	48	28	4 24	1828....	32	14	2 44
1820....	48	26	3 80	1829....	32	13 $\frac{1}{2}$	2 10
1821....	40	22	3 78	1830....	32	13	1 98
1822....	40	20	3 48	1831....	32	13	2 10

The progress of wages under the factory system from 1835 to 1860 is shown by the following tables, the facts for which were collected by David Chadwick, esq., treasurer of Salford, England, in 1859, from the wage-books of the cotton factories.

The following table shows the average return of weekly wages in the years named:

Name of trade.	1839.		1849.		1859.	
	Hours weekly.	Net earnings.	Hours weekly.	Net earnings.	Hours weekly.	Net earnings.
<i>Cotton manufacture.</i>						
Steam-engine tender.....	69	\$5 76	60	\$6 72	60	\$7 20
Stoker.....	69	3 84	60	4 08	60	4 32
Lodgekeeper.....	69	4 32	60	4 80	60	5 04
Warehouse boys, fourteen to eighteen years.....	69	1 80	60	1 80	60	1 92
Warehousemen, twenty-one years and upward.....	69	4 32	60	4 80	60	5 28
Night watchmen.....	69	3 89	60	3 84	60	4 32
<i>Carding department.</i>						
Scutchers (women and girls).....	69	1 68	60	1 80	60	1 92
Strippers (young men).....	69	2 64	60	2 88	60	3 36
Grinders.....	69	3 12	60	3 12	60	3 00
Overlookers.....	69	6 00	60	6 72	60	6 72
Card-winders, fourteen to eighteen years (boys).....	69	1 44	60	1 56	60	1 68
Drawing-frame tenters (girls and women).....	69	1 56	60	1 68	60	1 92
Bobbin and fly tenters (women).....	69	1 80	60	2 04	60	2 16

Name of trade.	1830.		1840.		1850.	
	Hours weekly.	Net earnings.	Hours weekly.	Net earnings.	Hours weekly.	Net earnings.
<i>Spinning upon self-acting mules.</i>						
Minders:						
No. 4's to 24's.....	60	\$3 84	60	\$4 32	60	\$4 80
No. 25's to 40's.....	60	4 32	60	4 44	60	5 28
Piecers (women and young men).....	60	1 02	60	2 16	60	2 40
Overlookers.....	60	4 80	60	5 28	60	6 24
<i>Throstle spinning.</i>						
Spinners:						
Girls fourteen to eighteen years.....	60	96	60	1 08	60	1 20
Women eighteen years and upward.....	60	1 68	60	1 80	60	2 16
Overlookers.....	60	4 32	60	4 80	60	5 76
Doffers to spinners (boys).....	60	1 20	60	1 32	60	1 44
<i>Reeling.</i>						
Throstle-reelers (women).....	60	2 16	60	2 28	60	2 28
Cop-reelers.....	60	2 04	60	2 16	60	2 16
Pin-winders (girls).....	60	1 32	60	1 44	60	1 82
Bobbin-winders (women).....	60	2 16	60	2 28	60	2 16
Warpers.....	60	5 28	60	5 28	60	5 62
Drawers.....	60	4 44	60	4 44	60	4 66
Dressers.....	60	4 80	60	4 80	60	4 80
Sizers.....	60	5 52	60	5 52	60	6 00
Beamers.....	60	5 28	60	5 28	60	5 28
<i>Doubling.</i>						
Doublers (women).....	60	1 08	60	1 80	60	2 10
Doffers to doublers (girls).....	60	96	60	1 08	60	1 20
Overlookers.....	60	5 76	60	6 00	60	6 72
Jobbers (young men).....	60	2 40	60	2 64	60	3 12
<i>Gassing yarn.</i>						
Gassers (young women).....			60	1 02	60	2 28
Singers by oil.....	60	1 02	60		60	

The following shows the wages paid for hand-mule spinning in the years named :

Work.	1830.		1840.		1850.		
	Net earnings.		Net earnings.		Net earnings.		
	Hours.	800 spindles.	Hours.	800 spindles.	Hours.	800 spindles.	1,600 spindles.
<i>Spinning upon hand mules.</i>							
Spinners:							
No. 40's.....	60	\$5 52	60	\$5 04	60	\$5 52	.....
No. 60's.....	60	6 00	60	5 04	60	5 52	.....
No. 80's to 100's.....	60	6 00	60	5 04	60	6 00	\$7 20
No. 120's to 140's.....	60	9 60	60	8 64	60	.....	9 00
No. 160's to 180's.....	60	10 08	60	8 64	60	.....	10 08
No. 180's to 220's.....	60	10 80	60	9 00	60	.....	10 80
Piecers, 14 to 18 years.....	60	1 32	60	1 32	60	1 44	1 44
Piecers above 18 years.....	60	1 02	60	2 04	60	2 16	2 40

The following shows the wages paid for power-loom weaving in the manufacture of cotton cloths, etc., in the years named :

Work.	1830.				1840.				1850.			
	Hours.	2 looms.	3 looms.	4 looms.	Hours.	2 looms.	3 looms.	4 looms.	Hours.	2 looms.	3 looms.	4 looms.
Power-loom weavers (principally women):												
72-reed printers' cloth.....	60	\$2 16	.....	\$4 08	60	\$2 16	\$3 12	\$3 84	60	\$2 40	\$3 60	\$4 32
40-inch shirtings.....	60	2 16	.....	4 08	60	2 16	3 12	3 84	60	2 58	3 84	4 80
38-inch domestics, 52 reed, 18 picks.....	60	2 40	.....	3 84	.....	2 40	.....	3 84	.....	2 40	.....	3 84
Helpers (girls).....	60	1 20	.....	1 20	.....	1 20	.....	1 20	.....	1 20	.....	1 20
Bed-ticks.....	60	.....	.....	.....	60	2 88	.....	.....	60	2 88	.....	.....
Small wares.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jaconets.....	.....	.....	.....	.....	60	2 64	.....	.....	60	2 64	.....	.....

The following shows the wages paid for power-loom weaving in the manufacture of velvets, etc., in the years named:

Work.	1839.		1849.		1859.	
	Hours.	Wages.	Hours.	Wages.	Hours.	Wages.
Power-loom weavers:						
Velvets.....	59	\$2 88	59	\$2 88	59	\$3 36
Velveteens.....	59	2 88	59	2 88	59	3 36
Fustians.....	59	2 88	59	2 88	59	3 36

The following table exhibits the proportionate number of men, women, boys, and girls in a cotton-mill in Lancashire employing 500 persons, and the average amount of the wages paid weekly to each class in 1859:

Class of work.	Men.	Women.	Boys.	Girls.	Total.
Stokers, engineers, lodgekeepers, warehousemen, mechanics, and porters.....	20	2	5		27
Cotton mixing and blowing.....	7		1		8
Carding.....	17	36	4	16	72
Self-acting-mule spinning.....	24		10	1	35
Throstle spinning, winding, and warping.....	7	39	12	11	69
Power-loom weavers.....	10	173		92	275
Beaming, twisting, and sizing.....	10	1	1	2	14
Totals.....	95	251	33	121	500
Average of total wages of workers in all departments taken together.....	\$421 80	\$612 44	\$55 44	\$145 20	\$1,234 88
Average weekly wages to each person.....	4 44	2 44	1 68	1 20	2 47

It will be seen that of the total number 19 per cent. are men, 50.2 per cent. women, 6.6 per cent. boys, and 24.2 per cent. girls.

The wages of nearly all classes of factory operatives appear to have increased from 10 to 25 per cent. during the twenty years preceding 1859. This was mainly owing to the improvements in the construction of the machinery and the increased speed at which it was worked, and its consequently increased productive power.

Mr. Henry Ashworth, a manufacturer of Bolton, estimated in 1859 that—

Before 1842 the operative spinner's wages for the production of 20 pounds of yarn, No. 70's, on a pair of mules of 400 spindles each, was \$1 10, or 5½ cents per pound, and at this rate his net earnings amounted to about \$4 80 per week; and that in 1859, with the improvements effected in the spinning-mule, by which each machine carries 800 spindles, the same workman, with a little extra assistance by piecers (boys), can earn \$7 40 per week net, although the amount he receives in wages for 20 pounds of yarn is reduced from \$1 10 to 94½ cents, or 0.77 of a cent per pound.

The reduced cost upon the production of a week by the working of a pair of mules with 800 spindles each (instead of 400 each) amounts to \$5 72, which is shared in the following proportions, viz: to the operative, \$2 60, leaving \$3 12 for extra aid, the reduction of price to the consumer, and interest on additional capital, and profit to the master.

Mr. Ashworth also stated that the average rate of wages of a spinner on a pair of unimproved mules of 400 spindles each in producing No. 70's yarn had been as follows:

Year.	Per 20 pounds.	Gross earnings per week.	Piecer's wages per week.	Net.
1842.....	\$1 10	\$8 04	\$3 84	\$4 80
1846.....	1 18	9 12	3 84	5 28
1850.....	1 04	8 52	3 84	4 68
1859.....	1 22	9 84	3 84	6 00

The same workman, with a pair of "double deckers", with 1,600 spindles and more piecers, earned, in 1859, 94½ cents for 20 pounds, \$14 36 gross per week, less \$6 96 for piecers, or, net, \$7 40.

The facts relating to the wages of the cotton-factory operatives of the west of Scotland for the years 1851, 1856, and 1858 were collected by Dr. John Strang in the latter year, and were published by him in the following table:

Occupation.	1851.	1856.	1858.
Power-loom weavers.....	\$2 10	\$2 58	\$2 34
Spinners.....	6 00	7 20	6 48
Winders.....	1 92	2 16	2 16
Warpers.....	2 88	4 08	3 96
Dressers.....	7 68	9 60	8 40
Tenters.....	7 20	9 60	9 12
Twisters.....	2 16	2 88	2 88
Mechanics.....	5 76	6 48	6 24
Laborers.....	2 88	4 08	3 00

From this table it appears that wages increased very considerably between 1851 and 1856, but that after the financial panic of 1857 they fell off over 7 per cent.

The records of wages, and indeed of most data relating to manufactures since 1860, for England, have been very meager. From the facts collected by Dr. Edward Young, and published in the fifth annual report of the Massachusetts bureau of statistics of labor (1874), the following table, showing wages in 1870-1871, has been arranged:

Occupations.	Average weekly wages, standard gold.	Occupations.	Average weekly wages, standard gold.	Occupations.	Average weekly wages, standard gold.
CARDING.		Men:		DRESSING.	
Overseer:		First grade.....	\$15 73	Dressers.....	\$5 32
First grade.....	\$12 10	Second grade.....	13 81	Drawers, women:	
Second grade.....	10 89	Third grade.....	9 68	First grade.....	3 63
Third grade.....	8 47	Fourth grade.....	8 23	Second grade.....	3 20
Fourth grade.....	7 26	Back-boys:		Third grade.....	3 02
Fifth grade.....	6 77	First grade.....	2 60	Fourth grade.....	2 66
Sixth grade.....	6 29	Second grade.....	1 93	Twisters, men.....	5 80
Pickers, females.....	2 90	Third grade.....	1 33	Slashers.....	6 29
Strippers:		Men.....	6 29	SPOOLING.	
First grade.....	5 32	Boys:		Rulers, women:	
Second grade.....	4 35	First grade.....	1 45	First grade.....	3 15
Third grade.....	3 87	Second grade.....	72	Second grade.....	2 77
Grinders:		Women:		WEAVING.	
First grade.....	5 32	First grade.....	2 42	Weavers, men or women:	
Second grade.....	5 08	Second grade.....	2 18	First grade.....	6 05
Women:		Half-timers.....	60	Second grade.....	5 32
First grade.....	3 99	Young persons:		Third grade.....	4 43
Second grade.....	3 55	First grade.....	3 87	Fourth grade.....	3 26
Third grade.....	2 90	Second grade.....	3 63	Fifth grade.....	2 66
Fourth grade.....	2 18	Third grade.....	2 39	REPAIR SHOP.	
Girls.....	1 57	Fourth grade.....	1 57	Overseer.....	14 52
SPINNING.		Spinners:		Mechanics:	
Overseers:		Spare hands.....	2 42	First grade.....	8 18
First grade.....	14 52	Do.....	2 17	Second grade.....	7 74
Second grade.....	9 68	Hand-mule spinners who employ their own piecers, men:		Laborers.....	5 32
Third grade.....	8 47	First grade.....	12 10	YARD HANDS.	
Fourth grade.....	7 26	Second grade.....	10 89	Laborers.....	4 35
				Engineers.....	6 77

To show the present rates of wages in the cotton industry of Great Britain is a task more difficult than to ascertain rates for the past, for it seems to have been the settled policy of British manufacturers for the past fifteen or twenty years not to give their rates to the public.^(a) However, the reports of Colonel Albert D. Shaw,

^a The forthcoming report of the board of trade will supply much valuable material in this respect.

American consul at Manchester, corroborated by the excellent reports of the British board of trade and my own recent inquiries in Lancashire, have enabled me to present the following table of wages for 1880-1882:

Wages per day in an East Lancashire cotton-weaving mill. (Hours of labor, 56 per week.)		Wages per day in an Oldham cotton-spinning mill. (Hours of labor, 56 per week.)		Wages per day in a Blackburn cotton-spinning mill. (Hours of labor, 56 per week.)	
Weavers, 3 looms.....	\$0 04 to \$0 72	Mule-overlookers.....	\$1 00 to \$2 00	Spinning masters and carders.....	\$1 20 to \$2 00
Weavers, 4 looms.....	80 to 96	Carders.....	1 00 to 2 00	Spinners.....	1 20 to 1 40
Weavers, 6 looms.....	1 20 to 1 44	Strippers.....	88 to 96	Piecers.....	46 to 56
Weavers, children, half-timers.....	14	Jobbers.....		Creelers.....	28 to 34
Beamers or warpers.....	70 to 90	Grinders.....	65 to 76	Rovers.....	58 to 66
Winders.....	50 to 80	Drawing and slubbing hands.....		Slubbers.....	50 to 60
Tapers or sizers.....	1 20 to 1 08	Intermediate and roving.....	62 to 76	Drawers.....	52 to 50
Tacklers or overlookers.....	1 12 to 1 08	Little-tenders (full-time).....	86	Grinders.....	85 to ..
Engine drivers and firemen.....	96 to 1 08	Little-tenders (half-time).....	16	Blow-room hands.....	48 to 85
				Engine drivers.....	84 to 2 00
				Firemen.....	64 to 84

The course of the rates of wages in America under the factory system cannot be given with the fullness with which I have been able, from a vast deal of matter, to present British rates. Still, with few breaks, I am able to trace the progress of wages quite satisfactorily from the inauguration of the system to the present time. For the past forty years the American record is very clear. The early American record is not complicated by the presence of the hand-loom weaver, as a class, and of course is free from the results of the contentions of the hand- and power-loom weavers, and the consequent reactions and fluctuations in wages which in England so trouble the investigators of wages.

The hand-loom weaver of America never earned much over 50 cents per day, if we take the ordinary shirtings as the test; for of this fabric a hand weaver could turn off from 40 to 50 yards per week, for which he received from 5 to 10 cents per yard. These statements I gather from the books of Mr. Samuel Batchelder, a manufacturer, kept by him in 1813, and put into my hands by his son, Mr. John M. Batchelder, of Cambridge, Massachusetts. According to his books weavers were paid for shirtings 5 to 10 cents per yard; sheetings, 12 cents; ginghams, 10 to 12 cents; ticking, 10 cents; the price varying according to the fineness of the fabric.

In 1815, before the power-loom had affected production in this country, the congressional committee on manufactures reported the average wages of cotton-mill operatives, for men, women, and children indiscriminately, at \$1 50 per week, or \$78 per year. The women and children constituted 66 per cent. of the whole number of persons employed, which was reported to have been 100,000. These statements are not of much value, but they are the first, so far as I am aware, to give the wages of cotton-factory operatives.

The first Lowell factory started operations in 1823. At that time but few spinning-mills were in existence. Few accounts are to be found which give rates of wages, cost, or amount of product. Doubtless many such statements are in existence, but they are rarely obtainable. Through the courtesy of Mr. Edward Atkinson, I have received authentic records of a large number of representative factories, covering the period from 1828 to 1842-'43. These records are manuscript statements regarding various factories, each statement being certified to by the agent or other officer of the corporation. The tabulations from these records, presented herewith, have not been in print before.

For 1828 we have this statement, showing the average wages of girls (women) per week for two of the best known factories in Massachusetts:

Carding.....	\$2 55
Spinning.....	2 58
Weaving.....	2 61
Dressing.....	2 82
Of all.....	2 62

These were gross wages; that is, board, usually \$1 25 per week, was deducted from the weekly pay as given. These rates did not vary much for several years; they were for sheetings and shirtings, No. 14 yarn. The same factory in 1836 paid wages to female operatives per week as follows:

Speeders, etc.....	\$2 44
Drawers.....	1 87
Warp spinners.....	2 21
Filling spinners.....	2 13
Weavers.....	2 05
Warpers.....	2 43
Dressers.....	3 11

Average for all females: highest, August, 1836, \$2 53; lowest, May, 1836, \$2 19 per week. Same conditions as to board as in 1828. These rates show some falling off after 1830-'31, but this is readily accounted for. When the

factories of Lowell made calls for operatives, they made a bid for the best by offering wages in excess of those paid for domestic service, which ranged from 50 cents to \$1 per week, including living; the women who went from house to house to spin and weave, or help in making the clothes of the family, could not earn much more than 75 cents per week. There was a widespread feeling that the factory might degrade, and thus a prejudice grew up against it which could not be removed except by wages liberal in comparison to those paid for other services. The financial difficulties of 1837, too, had an influence unfavorable to wages. In 1842-43 they had not changed much, as will be seen from the following table, giving wages for men and women for a very large number of factories in New England. I have used a number for each establishment instead of the name of the corporation or firm:

Kind of goods.	No. of yarn.	CARDING.		SPINNING.		WEAVING.		DRESSING.		CLOTH-ROOM.		SHOP.	YARD AND WATCH.	OVER-SEERS.
		Men.	Women.	Men.	Women.	Men.	Women.	Men.	Women.	Men.	Women.	Men.	Men.	Men.
		Average wages per day, gross.	Average wages per week, net.	Average wages per day, gross.	Average wages per week, net.	Average wages per day, gross.	Average wages per week, net.	Average wages per day, gross.	Average wages per week, net.	Average wages per day, gross.	Average wages per week, net.	Average wages per day, gross.	Average wages per day, gross.	Average wages per day, gross.
1 Drillings.....	14	\$0 91	\$1 41	\$1 17	\$1 44	\$0 99	\$1 37	\$1 46	\$1 63	{ \$0 90 to 1 50 }	\$1 87	{ \$1 26 to 4 00 }	{ \$1 00 to 2 00 }	\$2 08
2 Drillings.....	15	92	1 52	1 10	1 39	1 19	1 80	1 19	1 98	{ 1 00 to 2 00 }	1 62	.....	{ 84 to 1 25 }	2 20
3 Drillings.....	14, 15	77	1 49	1 10	1 45	1 29	1 31	1 22	1 81	(*)	(*)	1 33	94	2 30
4 Drillings, shirtings.....	14	80	1 41	95	1 11	1 15	1 42	1 56	1 82	1 08	1 50	1 55	1 06	1 94
5 Drillings.....	14	76	1 42	1 00	1 32	1 36	1 05	1 15	1 63	1 13	1 71	1 33	{ 60 to 1 16 }	1 88
6 Drillings, shirtings.....	13, 14	77	1 50	1 10	1 46	1 07	1 91	1 08	1 35	1 20	1 60	1 33	1 00	1 94
7 Drillings.....	14	87	1 42	1 25	1 41	1 16	1 39	1 40	1 60	1 42	1 75	1 30	1 16	2 00
8 Drillings.....	14	91	1 42	1 13	1 42	1 11	1 47	1 11	1 79	1 19	1 78	1 47	1 13	2 25
9 Drillings, twilled goods.....	14	99	1 54	1 23	1 42	1 45	1 58	1 25	1 66	1 12	1 63	1 40	1 15	1 93
10 Sheetings.....	12½, 14	90	1 42	1 14	1 43	1 10	1 34	1 33	1 78	1 10	1 87	1 64	{ 1 00 to 2 00 }	2 08
11 Shirtings.....	14	86	1 42	1 17	1 45	1 04	1 40	1 34	1 60	1 10	1 87	1 64	{ 1 00 to 2 00 }	2 08
12 Sheetings.....	14	90	1 57	1 40	1 37	1 26	1 35	1 23	1 72	93	1 51	1 38	1 06	1 97
13 Sheetings, shirtings.....	14	89	1 87	1 15	1 33	1 50	1 35	1 36	1 96	93	1 51	1 38	1 06	1 97
14 Sheetings.....	14	74	1 39	1 05	1 30	1 09	1 85	85	1 50	1 25	1 75	1 42	79	1 80
15 Sheetings.....	14	61	1 53	67	1 20	80	1 59	71	1 64	(†)	(†)	1 25	80	1 87
16 Sheetings.....	14	80	1 39	82	1 21	1 18	1 40	1 58	1 63	1 08	1 50	1 55	1 06	1 94
17 Sheetings.....	14	83	1 52	98	1 40	1 25	1 47	1 14	1 63	(*)	.....	1 33	94	2 15
18 Sheetings, shirtings, drillings.....	14, 15	88	1 61	1 29	1 39	1 02	1 51	1 20	1 92	{ 1 00 to 2 00 }	1 62	.....	{ 84 to 1 25 }	2 37
19 Sheetings.....	14	90	1 39	1 18	1 37	1 26	1 30	1 27	1 67	1 00	1 75	1 25	1 04	2 00
20 Shirtings.....	14	88	1 45	1 19	1 39	1 20	1 27	1 42	1 57	1 00	1 75	1 25	1 04	2 00
21 Sheetings.....	14	89	1 36	1 20	1 40	1 37	1 30	1 36	1 81	1 02	1 75	1 32	1 03	1 95
22 Sheetings, drillings.....	14	88	1 45	1 01	1 36	1 37	1 62	1 24	1 70	1 29	1 50	1 43	94	1 95
23 Drillings, print cloths, lawns.....	22	75	1 47	95	1 27	1 28	1 53	1 54	1 99	1 08	1 50	1 55	1 06	1 94
24 Drillings, twilled goods.....	20	91	1 51	1 23	1 43	1 15	1 71	1 21	1 45	1 12	1 63	1 40	1 15	1 93
25 Print cloths, drillings.....	22	98	1 44	1 24	1 51	1 22	1 49	1 33	1 85	1 33	1 95	1 15	1 05	2 00
26 Shirtings, drillings, print cloths.....	24	74	1 44	93	1 39	1 09	2 07	1 19	1 74	1 25	1 75	1 42	79	1 80
27 Print cloths, drillings.....	24	62	1 54	72	1 20	93	1 72	71	1 61	(†)	(†)	1 25	80	1 87
28 Sheetings, drillings.....	26	90	1 61	1 22	1 50	1 33	1 73	1 62	2 07	1 33	1 95	1 15	1 05	2 00
29 Print cloths, drillings.....	30	97	1 50	1 25	1 48	1 33	1 53	1 63	1 73	1 33	1 95	1 15	1 05	2 00
30 Shirtings, print cloths.....	30	94	1 23	1 41	1 40	1 22	1 50	1 25	1 66	1 02	1 75	1 32	1 03	1 95
31 Sheetings, shirtings.....	30	87	1 48	1 32	1 38	1 31	1 57	1 63	1 67	1 02	1 75	1 32	1 03	1 95
32 Drillings, sheetings.....	30	78	1 30	89	1 25	1 04	1 70	84	1 36	(†)	(†)	1 25	80	1 87
33 Drillings, print cloths, sheetings.....	35, 38	83	1 37	1 03	1 40	1 20	1 88	1 37	1 76	1 13	1 71	1 33	{ 60 to 1 06 }	1 87
34 Drillings, shirtings.....	36 to 39	74	1 43	1 26	1 45	96	2 45	1 54	2 02	1 30	1 60	1 33	1 00	1 94
35 Drillings, shirtings.....	40	91	1 60	1 29	1 54	1 20	1 68	1 37	1 65	1 19	1 78	1 47	1 13	2 25
36 Drillings, print cloths.....	40	98	1 61	1 16	1 51	1 18	1 69	1 32	1 90	1 19	1 78	1 47	1 13	2 25
37 Print cloths.....	38	95	1 42	94	1 54	1 37	1 95	1 66	2 01	1 33	1 95	1 15	1 05	2 00
38 Drillings, shirtings, sheetings.....	22, 36	92	1 53	1 22	1 37	1 24	1 56	1 38	1 77	1 12	1 63	1 40	1 15	1 93
Averages.....		85	1 47	1 11	1 39	1 19	1 59	1 29	1 73	1 19	1 71	1 43	1 07	2 00

* Four and three-fourths cents per bale.

† Eight mills per hundred weight.

The following elaborate table, giving a record of the progress of wages in the United States from 1840 to 1880, I have compiled from original returns kindly loaned me by Mr. Edward Atkinson. In considering them it should be remembered that the period of 1870-75 was one of inflated prices, and due allowance should be made. This table, or series of tables, represents the whole country, the variation in different localities being quite marked. Under "Males", second hands and overseers are excluded:

Occupations.	1840.	1850.	1860.	1870.	1875.	1880.	Occupations.	1840.	1850.	1860.	1870.	1875.	1880.
MAINE.							NEW HAMPSHIRE—Continued.						
ESTABLISHMENT No. 1.							ESTABLISHMENT No. 5.						
<i>Males.</i>							<i>Males.</i>						
Common laborers				\$8 76	\$0 12	\$7 50	Common laborers	\$5 00	\$6 00	\$9 00	\$8 25	\$7 50	
Mechanics				11 52	11 94	10 00	Mechanics	8 00	9 00	12 00	11 00	10 50	
Picker tenders				7 00	6 60	5 40	Picker tenders	3 30	5 00	7 50	6 00	5 50	
Carders				7 00	6 00	5 40	Carders	3 75	5 50	8 00	6 00	5 00	
Spinners				11 16	10 20	9 72	Spinners	3 24	2 87	5 25	4 80	4 75	
Weavers					7 74	6 42	Weavers	3 71	3 92	6 19	4 92	5 00	
Dresser or slasher tenders				9 66	11 64	9 00	Dresser or slasher tenders	4 25	4 50	8 00	12 00	10 00	
Watchmen				10 00	10 00	10 00	Yard and watch	5 00	6 00	8 00	8 00	7 00	
<i>Females.</i>							<i>Females.</i>						
Weaving only				6 00	7 88	6 90	Weaving only	3 71	3 92	6 19	4 92	5 00	
All departments, including weaving				5 94	6 42	5 70	All departments, including weaving	3 12	3 18	5 46	5 10	4 92	
NEW HAMPSHIRE.							MASSACHUSETTS.						
ESTABLISHMENT No. 1.							ESTABLISHMENT No. 1.						
<i>Males.</i>							<i>Males.</i>						
Common laborers			\$6 00	9 78	9 75	7 08	Common laborers	5 52	4 98	8 40	7 50	6 00	
Mechanics			9 42	12 54	11 96	10 98	Mechanics	\$7 98	8 52	9 00	13 50	12 12	10 62
Picker tenders			4 65	6 96	8 46	7 20	Picker tenders	4 68	4 80	4 98	9 00	7 80	6 60
Carders			4 26	7 86	6 72	6 12	Carders	4 50	4 50	4 56	8 28	7 26	6 30
Spinners			4 62	7 02	6 48	6 12	Spinners			5 58	10 86	10 08	8 88
Weavers							Dresser or slasher tenders				12 00	11 16	9 30
Dresser or slasher tenders			4 64	10 35	11 82	10 00	Yard and watch	6 60	6 36	5 04	8 40	7 02	6 96
Yard and watch			8 16	10 50	11 20	10 99	<i>Females.</i>						
<i>Females.</i>							<i>Females.</i>						
Weaving only			\$3 79	\$4 71	3 28	5 40	Weaving only	2 75	3 52	3 73	5 90	5 35	5 33
All departments, including weaving	3 50	3 40	3 25	5 37	5 41	5 40	All departments, including weaving	2 84	3 22	3 26	5 42	5 05	4 88
ESTABLISHMENT No. 2.							ESTABLISHMENT No. 2.						
<i>Males.</i>							<i>Males.</i>						
Common laborers							Common laborers				10 50	9 00	7 50
Mechanics				15 25	14 00	12 85	Mechanics				14 28	12 48	11 68
Picker tenders				8 00	7 00	6 60	Picker tenders				7 50	6 75	5 25
Carders				8 00	7 00	6 60	Carders				9 36	7 68	7 20
Spinners				13 00	10 00	9 00	Spinners				13 40	12 25	12 00
Weavers				8 00	7 25	6 25	Weavers				13 20	10 50	10 10
Dresser or slasher tenders				12 00	10 50	10 00	Dresser or slasher tenders				15 00	11 52	11 22
Yard and watch				10 00	9 00	9 00	Yard and watch				12 00	10 05	9 24
<i>Females.</i>							<i>Females.</i>						
Weaving only				8 00	7 25	6 25	Weaving only						
All departments, including weaving				7 25	6 50	5 75	All departments, including weaving						
ESTABLISHMENT No. 3.							ESTABLISHMENT No. 3.						
<i>Males.*</i>							<i>Males.</i>						
Common laborers	3 00	4 50	5 00	7 00	6 50	6 00	Common laborers	5 52	6 00	9 36	10 02	7 80	
Mechanics	6 00	7 50	9 00	10 50	10 00	9 72	Mechanics	8 58	8 40	13 83	12 36	11 78	
Picker tenders	3 00	4 50	5 00	7 00	6 50	6 00	Picker tenders	6 00	7 02	6 00	9 42	9 04	8 40
Carders	2 75	4 25	4 75	6 75	6 25	5 75	Carders	4 50	4 98	4 98	8 04	8 04	7 50
Spinners, mule	5 00	6 72	7 50	11 50	11 00	9 60	Spinners, mule	2 63	2 40	8 37	12 30	10 50	
Weavers	5 00	5 75	6 00	7 00	6 33	6 75	Weavers	4 20	6 00	5 68	10 00	9 78	8 07
Dresser or slasher tenders	10 00	10 50	10 50	11 00	11 00	10 00	Dresser or slasher tenders	7 02	9 79	11 04	17 40	12 82	13 30
Yard and watch	0 00	7 00	8 00	9 00	9 00	9 00	Dyers	6 25	6 21	6 15	10 29	10 02	8 91
<i>Females.</i>							<i>Females.</i>						
Weaving only				6 00	7 25	7 00	Yard and watch	6 00	6 36	7 00	9 78	9 96	9 60
All departments, including weaving				5 34	5 67	5 50	Spinners, frame	2 68	3 21	4 23	4 05	3 01	
ESTABLISHMENT No. 4.							ESTABLISHMENT No. 4.						
<i>Males.</i>							<i>Males.</i>						
Common laborers			6 00	9 00	9 00	7 00	Weaving only	4 61	4 99	4 54	7 48	7 80	7 38
Mechanics			9 08	11 82	12 54	10 44	All departments, including weaving	4 11	4 02	3 78	6 36	6 72	6 15
Picker tenders and carders			4 62	7 14	7 50	7 14	<i>Females.</i>						
Dresser or slasher tenders						9 57	Common laborers				7 50	6 00	4 80
Yard and watch			6 00	9 00	9 00	8 10	Mechanics				13 75	12 00	10 50
<i>Females.</i>							<i>Females.</i>						
Weaving only			3 81	4 85	5 02	5 02	Picker tenders				7 50	6 00	5 40
All departments, including weaving			3 56	4 67	4 67	4 44	Carders				8 75	7 50	6 12
ESTABLISHMENT No. 5.							ESTABLISHMENT No. 5.						
<i>Males.</i>							<i>Males.</i>						
Common laborers							Weavers				8 25	7 00	6 00
Mechanics							Dresser or slasher tenders				15 00	10 90	8 40
Picker tenders							Yard and watch				9 00	7 50	6 00
Carders							<i>Females.</i>						
Spinners							Weaving only				7 05	6 50	5 40
Weavers							All departments, including weaving				6 90	5 18	4 80
Dresser or slasher tenders							ESTABLISHMENT No. 2.						
Yard and watch							<i>Males.</i>						
<i>Females.</i>							<i>Males.</i>						
Weaving only							Common laborers						
All departments, including weaving							Mechanics						

* In the wages for males board is included.

† The wages in first column are for 1848.

Occupations.	1840.	1850.	1860.	1870.	1875.	1880.	Occupations.	1840.	1850.	1860.	1870.	1875.	1880.	
MASSACHUSETTS—Continued.							CONNECTICUT.							
ESTABLISHMENT No. 5.							ESTABLISHMENT No. 1.							
<i>Males.</i>							<i>Males.</i>							
Common laborers				\$8 10	\$8 10	\$7 68	Common laborers	\$5 00	\$8 00	\$7 00	\$6 00	\$6 50		
Mechanics				13 50	15 00	14 10	Mechanics			12 75	10 50	12 75		
Picker tenders				8 52	9 00	0 00	Picker tenders			4 50	7 00	5 50	0 00	
Carders				6 80	5 40	6 30	Carders			4 50	7 00	6 00	5 50	
Spinners, mule				8 52	7 98	0 24	Spinners, mule			6 30	9 00	8 50	8 50	
Thread-dresser tenders				12 00	12 00	11 40	Weavers			5 50	6 75	0 25	6 75	
Yard and watch				9 00	9 00	0 00	Slasher tenders				12 00	12 00	11 50	
<i>Females.</i>							<i>Females. †</i>							
Weaving only							Weaving only			4 75	6 25	5 75	6 25	
All departments, including weaving				6 00	5 70	6 00	All departments, including weaving			4 13	5 50	5 25	5 75	
ESTABLISHMENT No. 6.							ESTABLISHMENT No. 2.							
<i>Males.</i>							<i>Males.</i>							
Common laborers			\$5 00	9 00	7 50	7 00	Common laborers			0 00	9 00	9 00	7 50	
Mechanics			8 70	12 50	12 75	13 00	Mechanics			9 00	15 00	15 00	13 50	
Picker tenders			3 75	6 75	6 00	6 00	Picker tenders			5 00	7 50	7 50	7 50	
Carders			3 75	6 75	7 00	7 25	Carders			7 50	7 50	7 50	9 00	
Spinners			5 12	8 67	8 50	9 00	Spinners			5 00	9 50	10 50	10 50	
Weavers			4 00	8 00	7 75	7 50	Weavers							
Dresser or slasher tenders			5 62	10 92	9 20	8 70	Dresser or slasher tenders			7 00	10 80	12 00	12 00	
Yard and watch			6 00	9 00	8 00	8 00	Yard and watch			7 00	10 00	10 00	10 00	
<i>Females.</i>							INDIANA.							
Weaving only			3 05	6 50	6 25	5 75	ESTABLISHMENT No. 1.							
All departments, including weaving			3 00	6 00	5 75	5 20	<i>Males.</i>							
RHODE ISLAND.							<i>Males.</i>							
ESTABLISHMENT No. 1.							<i>Males.</i>							
<i>Males.</i>							<i>Males.</i>							
Common laborers				7 50	7 25	6 00	Common laborers			6 00	5 40	7 50	6 75	6 00
Mechanics				11 10	10 80	9 00	Mechanics			8 75	10 80	12 00	14 10	11 28
Picker tenders					5 75	6 00	Picker tenders			4 50	5 40	7 88	7 14	6 00
Carders					5 50	5 80	Carders			5 25	6 00	9 00	8 94	7 08
Spinners, mule				9 00	8 75	7 95	Spinners			2 76	2 64	3 75	3 90	4 50
Weavers				9 00	8 80	7 60	Weavers			4 46	3 96	3 72	3 63	
Dresser or slasher tenders				9 60	9 80	8 50	Dresser or slasher tenders			8 00	6 00	11 00	10 80	9 00
Yard and watch					6 50	6 00	Yard and watch			6 00	5 40	7 50	6 75	6 00
<i>Females.</i>							<i>Females.</i>							
Weaving only				6 80	6 55	5 50	Weaving only			3 00	3 12	3 00	3 96	4 04
All departments, including weaving				6 00	4 60	4 75	All departments, including weaving			2 05	2 88	3 24	3 78	3 78
ESTABLISHMENT No. 2.							NORTH CAROLINA.							
<i>Males.</i>							ESTABLISHMENT No. 1.							
<i>Males.</i>							<i>Males.</i>							
Common laborers *			\$8 66		9 00	8 41	Common laborers †			\$ 2 50	2 50	2 50	3 60	
Mechanics			12 25	10 60	13 34	12 84	Mechanics			4 50	4 50	6 00	6 00	6 00
Picker tenders				6 00	6 12	5 25	Picker tenders			2 75	3 00	4 00	4 00	4 50
Carders				7 58	9 00	8 50	Carders			3 00	3 50	3 60	3 60	3 00
Spinners				9 65	9 30	8 61	Spinners			1 25	65 00	2 00	2 00	2 50
Dresser or slasher tenders				12 90	11 59	10 00	Weavers			3 50	68 00	3 50	3 50	
Yard and watch				9 00	8 62	9 33	Dresser or slasher tenders					4 50	4 50	
<i>Females.</i>							<i>Females.</i>							
Weaving only				5 62	6 75	6 05	Weaving only			3 50	40 00	3 50	3 50	
All departments, including weaving				5 39	5 89	5 28	All other departments, excluding weaving			1 25	68 00	1 50	1 50	2 50
ESTABLISHMENT No. 3.							ESTABLISHMENT No. 2.							
<i>Males.</i>							<i>Males.</i>							
<i>Males.</i>							<i>Males.</i>							
Common laborers			6 00	8 50	8 25	7 00	Common laborers						3 60	
Mechanics			9 00	13 00	13 00	11 50	Mechanics						6 00	
Picker tenders and carders			5 00	8 25	7 00	5 50	Picker tenders						4 50	
Spinners, mule			6 75	10 00	9 75	8 50	Carders						5 00	
Weavers			5 50	8 50	7 00	6 50	Spinners						2 50	
Dresser or slasher tenders			11 50	18 50	12 00	12 00	Weavers							
Watchmen			7 50	9 50	11 00	9 75	Dresser or slasher tenders							
<i>Females.</i>							<i>Females.</i>							
Weaving only			4 25	7 00	6 25	6 75	Yard and watch						6 00	
All departments, including weaving			3 75	6 25	5 75	5 87	<i>Females.</i>							
<i>Females.</i>							<i>Females.</i>							
<i>Females.</i>							<i>Females.</i>							
Weaving only							Weaving only							
All departments, including weaving							All departments, including weaving						2 50	

* The wages in third column are for 1865.
 † Wages of females estimated.

‡ For 1855, in confederate currency.
 § These wages are for 1852.

MAINE.

Goods manufactured.	PROPORTION OF EMPLOYEES IN EACH 100.				AVERAGE PAY OF EACH CLASS PER WEEK.				PAY OF SPINNERS PER WEEK.		PAY OF WEAVERS PER WEEK.		PAY OF PIECE WEAVERS PER WEEK.		HOURS OF LABOR.		
	Men.	Women.	Male children.	Female children.	Men.	Women.	Male children.	Female children.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Five days.	Saturday.	Per week.
1 Cotton cloth	80	60	5	5	\$8 50	\$6 00	\$3 00	\$2 50	\$7 50	\$3 00	.....	.....	\$7 08	\$5 00	11	11	66
2 Cotton cloth	38	55	7	5	7 50	6 00	2 25	2 25	11 00	9 00	.....	.....	8 00	5 50	11	11	66
3 Cotton cloth	34	51	11	4	7 00	5 00	3 00	2 00	11 00	8 00	\$6 00	\$3 00	8 00	3 00	11	11	66
4 Cotton cloth	34	51	11	4	7 00	5 00	3 00	2 00	11 00	8 00	6 00	3 00	8 00	3 00	11	11	66
5 Cotton cloth	29	42	11	18	.....	.....	.....	.....	6 00	2 70	.....	.....	7 15	4 42	11	11	66
6 Cotton cloth and bags	32	56	8	4	7 50	5 00	2 75	2 75	11 00	9 00	4 00	4 00	7 89	5 32	11	11	66
7 Cotton goods	30	55	9	6	7 00	5 50	.....	.....	11 00	9 35	8 50	4 50	.....	.....	11	11	66
8 Cotton goods	40	50	6	4	7 00	5 00	2 75	2 75	10 50	9 00	.....	.....	8 00	5 40	11	11	66
9 Cotton goods, colored	31	64	2	3	7 50	5 50	4 75	3 50	10 50	9 00	6 00	4 50	10 00	5 00	10½	10½	64½
10 Print cloths, silesia, and cambrics.	65	25	7	3	8 00	6 00	3 00	3 00	12 00	10 00	.....	.....	10 00	5 00	11	11	66
11 Sail and overall duck	30	50	15	5	7 50	7 00	3 50	3 00	12 00	10 00	.....	.....	10 00	5 00	11	11	66
12 Sheetings	40	50	7	3	7 25	7 00	3 00	3 00	10 50	9 50	8 00	5 00	8 00	5 00	11	11	66
13 Sheetings	38	55	7	5	7 25	7 00	2 50	2 50	11 00	9 00	8 00	5 50	8 00	5 50	11	11	66
14 Sheetings	32	56	8	4	7 50	7 00	2 25	2 25	11 00	9 00	8 00	5 75	8 00	5 75	11	11	66
15 Sheetings	33	55	7	5	8 00	7 00	2 25	2 25	11 50	10 00	.....	.....	8 00	5 50	11	11	66
16 Sheetings, etc	34	51	11	4	7 00	5 00	3 00	2 00	11 00	9 00	6 00	3 00	8 00	4 00	11	11	66
17 Sheetings and shirtings	32	56	8	4	7 25	7 00	2 25	2 25	11 00	9 00	8 00	5 75	8 00	5 75	11	11	66
18 Warps and grain bags	40	50	5	5	7 50	5 40	3 00	3 00	6 00	4 20	.....	.....	9 00	6 00	11	11	66
19 Warps and grain bags	36	54	6	4	7 50	5 00	3 00	2 90	6 00	4 20	.....	.....	9 00	6 00	11	11	66

NEW HAMPSHIRE.

1 Cotton goods	33	60	7	.....	\$7 50	\$5 40	\$2 40	.....	\$10 00	\$8 00	\$7 50	\$4 00	.....	.....	10½	10½	64½
2 Cotton goods	30	45	12	13	7 50	5 50	3 00	\$3 00	10 00	8 00	.....	.....	\$8 00	\$5 00	11	9½	64½
3 Cotton goods	31	44	13	12	7 50	5 50	3 00	3 00	10 00	8 00	.....	.....	8 00	5 00	11	9½	64½
4 Cotton goods	31	55	9	5	7 50	5 30	3 30	3 30	12 00	9 00	8 00	4 25	.....	.....	10½	10½	64½
5 Print cloths	40	40	12	8	7 00	5 50	50	50	11 00	9 00	8 50	4 25	.....	.....	11½	11½	69
6 Yarns and fine sheetings	33	34	17	16	7 50	5 50	3 00	3 00	6 50	6 50	.....	.....	8 00	5 00	11½	11½	69

MASSACHUSETTS.

1 Cottonades	35	45	10	10	\$8 00	\$5 50	\$2 50	\$2 50	\$10 00	\$4 86	.....	.....	\$10 00	\$3 50	10	10	60
2 Cotton cloth	46	30	14	10	10 40	6 92	3 25	4 16	11 41	11 08	\$10 18	\$7 62	23 10	.....	10	10	60
3 Cotton cloth	15	70	10	5	6 00	5 00	2 50	2 50	8 50	3 50	8 50	4 20	.....	.....	10	10	60
4 Cotton cloth	30	60	5	5	7 92	5 25	2 50	2 50	6 00	3 50	8 00	4 00	.....	.....	10	10	60
5 Cotton cloth	35	65	.....	.....	9 00	6 00	4 50	4 00	9 00	3 00	10 00	4 50	.....	.....	10	10	60
6 Cotton cloth	45	44	5	6	.....	.....	.....	.....	11 42	.....	10 62	2 70	.....	.....	10	10	60
7 Cotton goods	24	63	6	7	7 92	4 98	2 28	2 28	11 01	9 00	.....	.....	9 70	3 50	10	10	60
8 Cotton goods	36	44	12	8	7 00	5 00	3 50	3 00	10 00	5 00	7 50	4 50	.....	.....	10	10	60
9 Cotton goods	45	45	5	5	7 00	4 50	4 00	3 00	10 00	5 00	7 00	4 00	.....	.....	10	10	60
10 Cotton goods	33	57	5	5	7 50	5 00	3 00	3 00	9 00	8 00	6 00	4 50	.....	.....	10	10	60
11 Cotton goods	20	30	30	20	9 41	5 84	3 83	3 02	9 50	7 25	10 71	5 81	.....	.....	10½	7½	60
12 Cotton goods	29	71	.....	.....	7 50	4 86	.....	.....	11 70	10 08	8 00	4 00	.....	.....	10½	8½	60
13 Cotton goods	36	44	10	10	9 50	6 00	3 50	3 50	12 00	8 00	11 00	7 50	.....	.....	10½	7½	60
14 Cotton goods	13	38	25	24	7 50	6 00	3 00	2 75	.....	.....	.....	.....	.....	.....	10	10	60
15 Cotton goods	25	50	11	14	7 50	4 50	3 00	3 00	10 00	9 00	7 20	4 50	.....	.....	10	10	60
16 Cotton goods and hosiery	26	40	16	18	7 75	6 00	3 50	3 50	9 00	6 60	.....	.....	9 00	3 60	10	10	60
17 Prints	25	55	12	8	9 00	5 00	2 50	2 50	9 60	8 40	9 00	4 50	9 00	4 50	10	10	60
18 Cotton and worsted goods	43	47	5	5	8 00	6 00	3 00	2 40	12 00	5 40	11 00	7 00	.....	.....	10	10	60
19 Cotton duck and yarn	25	10	30	35	11 00	7 00	4 00	4 50	4 20	3 65	10 00	4 00	.....	.....	10	10	60
20 Cotton flannel	35	45	10	10	7 50	5 50	2 50	2 50	.....	.....	9 00	3 50	9 00	3 50	10	10	60
21 Gingham	10	70	8	12	.....	.....	.....	.....	10 00	7 50	10 00	6 00	.....	.....	10	10	60
22 Print cloths	35	45	10	10	10 00	7 50	2 67	3 75	13 36	10 25	10 08	5 04	.....	.....	10	10	60
23 Print cloths	35	45	10	10	.....	.....	.....	.....	11 50	9 00	.....	.....	10 08	5 00	10	10	60
24 Print cloths	35	48	12	5	7 00	5 00	2 50	2 50	9 00	7 00	7 00	4 00	.....	.....	10	10	60
25 Print cloths	33	50	12	5	8 00	5 00	2 50	2 50	10 00	7 00	8 00	4 00	.....	.....	10	10	60
26 Print cloths	32	41	13	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	10	60
27 Print cloths	36	44	12	8	10 25	6 50	3 67	4 00	18 25	10 00	.....	.....	11 08	7 62	10½	7½	60
28 Print cloths	34	40	15	2	.....	.....	.....	.....	10 62	9 70	.....	.....	9 52	6 20	10	10	60
29 Print cloths	35	45	10	10	.....	.....	.....	.....	11 86	10 43	8 00	5 50	.....	.....	10	10	60
30 Sheetings, shirtings, etc	.....	.....	.....	.....	.....	.....	.....	.....	9 30	7 20	7 50	5 30	.....	.....	10	10	60
31 Sheetings, silesias, and fancy cottons.	15	75	6	4	8 00	7 00	3 00	3 00	9 00	4 50	8 25	6 00	9 50	7 00	10	10	60
32 Towels and cotton duck	30	60	5	5	9 00	6 00	3 50	3 50	6 00	3 50	7 00	4 00	.....	.....	10	10	60

RHODE ISLAND.

Goods manufactured.	PROPORTION OF EMPLOYÉS IN EACH 100.				AVERAGE PAY OF EACH CLASS PER WEEK.				PAY OF SPINNERS PER WEEK.		PAY OF WEAVERS PER WEEK.		PAY OF PIECE WEAVERS PER WEEK.		HOURS OF LABOR.		
	Men.	Women.	Male children.	Female children.	Men.	Women.	Male children.	Female children.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Five days.	Saturday.	Per week.
1 Cotton goods.....	24	00	10	6	\$9 00	\$6 72	\$4 00	\$3 00	\$3 50	\$3 00	\$9 00	\$6 00	.....	.....	11	11	63
2 Cotton goods.....	24	60	10	6	9 00	6 72	4 00	3 00	8 50	6 00	9 00	6 00	.....	.....	10½	10½	63
3 Cotton goods.....	32	47	9	12	7 50	6 50	3 00	3 00	10 00	8 00	.....	.....	\$9 25	\$4 02	11	11	66
4 Cotton goods.....	25	61	9	5	10 00	7 00	3 50	3 00	10 30	8 00	9 00	4 50	.....	.....	11	11	66
5 Cotton goods.....	25	61	9	5	10 00	7 00	3 50	3 00	10 30	8 00	9 00	4 50	.....	.....	11	11	66
6 Yarns.....	30	30	10	30	8 00	5 75	3 00	3 00	9 50	8 50	.....	.....	.....	.....	11	11	66
7 Yarns.....	34	48	9	9	10 00	6 00	3 60	3 00	10 00	9 00	.....	.....	.....	.....	11	11	66
8 Yarns.....	10	80	.....	10	9 00	6 00	.....	2 50	5 50	4 00	.....	.....	.....	.....	11	11	66
9 Spool thread, yarns, etc.....	32	53	8	7	9 00	6 00	3 50	3 00	12 00	12 00	.....	.....	.....	.....	11	11	66
10 Spool thread, yarns, and knitting cotton.....	20	50	10	20	.....	.....	.....	.....	8 00	8 00	.....	.....	.....	.....	11	11	66
11 Wadding, batting, and wiping waste.....	90	5	5	.....	9 00	6 00	5 00	.....	.....	.....	.....	.....	.....	.....	10½	10½	63

CONNECTICUT.

1 Fine cotton goods.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2 Cotton duck.....	21	50	11	18	\$7 20	\$5 70	\$3 30	\$3 30	.....	.....	.....	.....	\$9 00	\$4 50	11	5	60
3 Cotton duck.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 00	4 00	11½	9½	60
4 Duck.....	100	.....	.....	.....	7 50	.....	.....	.....	.....	.....	\$5 40	.....	.....	.....	12	9	60
5 Cotton duck and sail twine.....	43	47	7	3	7 50	5 00	4 00	4 00	.....	.....	6 00	.....	.....	.....	12	9	60
6 Ginghams and dress goods.....	44	34	14	8	8 50	6 00	3 60	3 60	\$9 12	\$6 75	.....	.....	10 80	4 68	11½	8½	66
7 Ginghams and dress goods.....	44	40	14	2	9 50	7 00	4 08	3 54	12 00	9 00	.....	.....	8 82	6 00	11	11	66
8 Hosiery yarn.....	63	22	15	.....	10 08	6 00	4 00	.....	11 00	9 00	.....	.....	.....	.....	12	9	66
9 Cottons, mosquito nettings, etc.....	33	33	22	12	9 00	6 50	3 00	2 75	12 00	10 00	.....	.....	14 00	7 00	11½	8½	65
10 Print goods.....	50	25	13	12	6 00	5 50	3 00	3 00	11 50	8 00	.....	.....	10 00	4 50	11½	8½	66
11 Print goods.....	30	55	5	10	7 00	5 00	3 00	3 00	8 00	6 00	.....	.....	7 00	4 00	12	9	66
12 Print goods.....	60	25	5	10	7 50	6 36	2 30	2 50	7 02	7 50	.....	.....	8 00	4 00	12	9	66
13 Print cloths.....	45	38	9	8	7 32	6 00	3 25	2 85	7 20	.....	.....	.....	6 55	5 25	12	9	66
14 Print cloths.....	.....	.....	.....	.....	7 02	5 50	2 50	2 50	6 60	.....	.....	.....	9 00	4 00	12	9	66
15 Print cloths.....	33	38	17	17	7 50	6 00	3 00	3 50	8 00	7 50	.....	.....	12 00	4 00	11½	8½	66
16 Prints, sheetings, etc.....	30	00	7	3	8 00	5 50	2 25	3 00	9 00	8 00	.....	.....	6 50	5 40	12	9	66
17 Patent hard-laid twine.....	26	42	10	16	7 00	4 50	3 00	3 00	.....	.....	.....	.....	.....	.....	12	9	66
18 Seine twine.....	41	25	17	17	6 00	4 00	3 00	3 50	.....	.....	.....	.....	.....	.....	12	9	66
19 Seine twine and welting cord.....	22	72	6	.....	6 00	4 50	3 50	.....	.....	.....	.....	.....	.....	.....	12	9	66
20 Cotton seine twine.....	38	44	9	9	7 62	4 50	4 00	4 00	.....	.....	.....	.....	.....	.....	12	9	66
21 Cotton seine twine and netting.....	35	45	15	5	8 00	5 00	4 14	4 13	5 00	4 25	.....	.....	6 50	5 00	12	9	66
22 Sheetings.....	.....	.....	.....	.....	7 20	4 75	2 50	2 50	8 04	7 50	.....	.....	9 24	3 75	12	9	66
23 Sheetings.....	34	40	15	11	7 00	5 00	2 50	2 00	9 00	4 50	.....	.....	7 00	4 00	11	11	66
24 Sheetings.....	25	25	25	25	7 50	6 00	3 00	3 00	9 00	6 00	.....	.....	9 00	4 50	11	11	66
25 Sheetings.....	53	42	5	.....	7 00	6 00	2 50	.....	8 00	6 50	.....	.....	7 00	5 00	12	9	66
26 Sheetings.....	33	23	25	14	6 30	5 00	2 62	2 50	9 37	7 75	.....	.....	9 00	4 00	12	9	66
27 Light sheetings.....	36	34	17	13	8 10	5 10	3 00	4 00	9 50	8 00	.....	.....	8 00	4 00	11	11	66
28 Sheetings and print goods.....	43	36	11	10	8 52	5 40	3 00	3 60	11 24	9 14	.....	.....	7 58	5 77	11½	9	66½
29 Sheetings and drills.....	31	24	23	22	7 50	5 50	3 00	3 00	8 00	6 00	.....	.....	6 50	4 00	11½	8½	66
30 Cheviot shirtings, and blue and brown denims.....	29	54	11	6	9 00	5 33	4 50	3 75	.....	.....	.....	.....	12 17	7 50	12	9	66
31 Fine shirtings, white vestings, etc.....	29	21	33	17	6 75	5 75	4 25	3 25	9 80	8 10	6 50	\$5 00	7 80	5 50	11	11	66
32 Spool cotton.....	40	50	6	4	9 00	7 00	5 00	4 00	14 00	6 00	.....	.....	.....	.....	10½	6½	60
33 Cotton tickings, blue drills, and shirting stripes.....	28	56	6	10	9 00	5 00	4 00	3 50	10 00	7 50	.....	.....	8 00	3 00	11½	8½	66
34 Various kinds of cotton cloths.....	40	34	15	11	7 25	5 75	2 75	2 50	8 35	7 12	.....	.....	8 50	5 00	12	12	72
35 Various kinds of fine cotton goods.....	40	37	13	10	7 00	6 00	2 26	2 26	8 24	7 50	.....	.....	9 00	4 00	11½	8½	66
36 Cotton warps.....	50	44	3	3	10 50	5 00	3 00	3 60	.....	.....	.....	.....	.....	.....	11½	8½	66
37 Cotton warps.....	27	49	22	2	6 78	5 20	3 22	3 00	6 00	3 00	.....	.....	.....	.....	12	9	66
38 Cotton warps.....	50	25	12	13	9 00	4 80	5 10	4 50	6 00	.....	.....	.....	.....	.....	15	15	90
39 Cotton warps and yarns.....	33	27	20	20	6 00	4 50	4 00	3 00	.....	.....	.....	.....	.....	.....	11½	8½	66
40 Yarns.....	20	50	25	5	7 50	4 50	4 00	4 50	.....	.....	.....	.....	.....	.....	12	9	66
41 Cotton yarns.....	27	24	26	23	7 00	5 00	2 50	3 00	8 00	7 00	.....	.....	.....	.....	12	9	66

NEW YORK.

Goods manufactured.	PROPORTION OF EMPLOYÉS IN EACH 100.				AVERAGE PAY OF EACH CLASS PER WEEK.				PAY OF SPINNERS PER WEEK.		PAY OF WEAVERS PER WEEK.		PAY OF PIECE WEAVERS PER WEEK.		HOURS OF LABOR.		
	Men.	Women.	Male children.	Female children.	Men.	Women.	Male children.	Female children.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Five days.	Saturday.	Per week.
1 Cotton goods.....	23	44	11	22	\$8 16	\$6 30	\$3 42	\$3 30	\$11 02	\$8 25	.....	.....	\$9 08	\$5 00	11	8½	63½
2 Fine shirtings and broad sheetings.	19	57	9	15	8 25	5 16	2 22	2 60	10 08	0 68	.....	.....	0 57	4 91	11½	10½	66
3 Knit underwear.....	40	60	.....	.....	6 50	4 00	.....	.....	5 75	4 00	.....	.....	3 50	3 50	11½	9½	66
4 Knit underwear.....	35	43	10	12	8 00	6 00	3 50	3 00	12 00	8 50	.....	.....	.....	.....	11½	8½	66
5 Knit underwear.....	34	58	5	5	6 00	6 00	3 00	3 00	8 22	5 00	.....	.....	0 00	4 00	11½	0	66½
6 Print cloths.....	26	57	14	3	7 13	4 45	2 80	3 25	9 00	5 64	.....	.....	0 06	3 73	11½	9½	66
7 Print cloths.....	33	38	22	7	5 60	4 00	2 87	3 17	4 50	3 25	.....	.....	5 25	2 66	12½	9½	72
8 Print cloths.....	41	43	10	6	6 76	5 18	2 30	2 93	9 00	0 00	.....	.....	7 44	3 88	12½	8½	66
9 Print cloths.....	21	35	18	26	6 00	4 22	2 23	2 60	6 20	5 00	.....	.....	0 70	4 50	11½	8½	66
10 Print cloths.....	31	41	16	12	6 73	5 03	2 50	2 71	4 68	3 56	.....	.....	6 65	3 60	11½	8½	66
11 Print cloths.....	20	47	18	15	9 75	5 00	2 83	2 50	10 00	5 10	.....	.....	6 75	5 00	11	11	66
12 Print cloths.....	30	40	15	9	7 01	4 95	2 90	3 36	.....	.....	.....	.....	6 78	4 38	11½	9½	66
13 Print cloths and cheese band-ages.	41	46	11	2	4 87	4 22	2 95	4 00	4 80	3 00	.....	.....	5 78	4 25	12½	10	72½
14 Sheetings and denims.....	34	44	15	7	7 00	4 80	2 53	2 72	8 02	7 03	.....	.....	7 23	4 31	11½	9½	66
15 Sheetings.....	36	36	22	6	7 10	4 50	2 80	3 12	8 00	.....	.....	.....	7 10	4 02	11½	9½	66
16 Sheetings.....	33	50	10	7	7 00	4 71	2 26	3 10	7 50	4 15	.....	.....	5 40	4 26	11½	9½	66
17 Sheetings.....	25	40	10	16	7 44	5 21	2 62	2 71	3 36	2 52	.....	.....	0 84	5 70	11½	9½	66
18 Light sheetings.....	45	44	9	2	5 18	3 90	2 30	3 48	4 11	3 30	.....	.....	0 18	2 51	12½	10	72½
19 Light sheetings.....	18	57	17	8	8 24	5 06	2 05	2 02½	8 60	8 10	.....	.....	6 96	4 55	11½	8½	66

These tables complete the wage exhibits for America. With all the facts obtainable for Great Britain and America, as presented herewith, covering the whole period during which the factory system has influenced wages, there seems but little necessity for extended analysis, yet a few points of value may be added. I realize the truth of a saying by Mr. G. R. Porter, one of England's best-known statisticians, that "no one, unless he shall have made the attempt to obtain information as to the rate of wages, can be aware of the difficulties opposed to his success". I am content, therefore, to state the facts, carefully compared and corroborated as far as possible, and leave the general treatment of them to other hands.

In England, in 1832, the men employed in the cotton trade constituted 29 per cent. of the whole number of persons employed; the women, 31 per cent.; the children, 40 per cent. In 1850 the proportion of men was 36 per cent.; of women, 56 per cent.; of children, 8 per cent. In 1868, of men, 30 per cent.; of women, 58 per cent.; of children, 12 per cent. I believe these last proportions hold very nearly the same at the present time. The proportion of men employed has not changed much since 1832; that of women has increased from 31 to 56 per cent.; while for children it has decreased from 40 to 12 per cent. The hours of labor have been reduced from twelve and one-half and thirteen per day to nine and one-half. An examination of the British tables will convince one that for most divisions of labor in cotton factories wages have very nearly doubled during the past half century.

For America, the proportions of men, women, and children employed cannot be stated for periods prior to 1870. For 1850 the males employed were 36 per cent. of the whole number, and the females 64 per cent.; for 1860 the males were 38+ per cent. and the females 61+ per cent. of the whole number. In 1870 the men constituted 31+ per cent., the women 51+ per cent., and the children 17+ per cent. of the whole number employed. In 1880 the men (males fifteen years of age and over) constituted 34 per cent., women (females sixteen years of age and over) 49 per cent., and children 17 per cent. of the whole. The proportions for 1870 and 1880 were very nearly alike. It is gratifying to know that the number of children employed does not increase in either country considered. The hours of labor have been reduced in this country, but not uniformly in all the states; but where they were formerly thirteen or fourteen hours per day they are now ten or eleven. The last table shows the difference in working time for New England and New York. It is true that, where ten hours prevail, not only wages but production per person equal if they do not exceed the rates and quantities in states where longer hours constitute a day's work.

The factory system has reduced the hours of labor; wages have about doubled in the United States during the past fifty years. In 1823 the average weekly wages of girls (women), as shown, were \$2 62; now they are \$4 84. The consideration of most of the specific divisions of labor which can be compared will demonstrate the truth of this conclusion. In many cases wages have more than doubled, but from the data no general average can be deduced.

In 1860 the average yearly wages for all, men, women, and children, was \$196+; in 1880 it was \$244-. The average for 1880 varies for different parts of the United States, it being \$258 42 in Massachusetts, \$255 77 for the

eastern states generally, \$235 19 for the middle states, \$168 59 for the southern states, and \$216 91 for the western states. A brief consideration of the effect the factory system has had upon prices and production, so far as this country is concerned, will answer all the purpose of a wider study. While wages have doubled during the real factory period, the past fifty years, the prices of goods have been decreased in greater proportion, as will be seen by the following table:

Year.	Price of heavy sheetings, per yard, in cents.	Price of printed calicoes, per yard, in cents.	Price of raw cotton, per pound, in cents.
1816.....	30	.....	30
1819.....	21	.....	22½
1826.....	13	22	13½
1829.....	8½	17	10½
1843.....	6½	12	7½
1845.....	7	11	6
1850.....	7	9½	12½
1855.....	7½	.....	10½
1860.....	8½	.....	13½
1870.....	10½	13	14½
1872.....	13½	15	19
1878.....	7½	6	11
1880.....	7½	7	12½

It will be observed that the prices of cloth fell faster than the price of cotton. The above table illustrates in a simple way the course of all prices under the factory system.

As to cost of production, a single illustration will suffice: The ratio of cost per pound, for labor, of common cotton cloth for the years 1828 and 1880, was as 6.77 to 3.31; wages being as 2.62 to 4.84. As to production, many facts can be given, although the data relative to hand work is fast passing from the region of positive personal knowledge. For this reason I have taken great pains to verify the statements which have been made to me.

A fair adult hand-loom weaver can weave from 42 to 48 yards of common shirting per week; from the six power-looms which the weaver in a factory would attend the product would be about 1,500 yards. On the hand-wheel (one spindle) a spinner can turn off 8 ounces of No. 10 cloth yarn in ten hours, or 3 pounds per week; the mule spinner about 3,000 pounds. The increase in the production of the most approved kind of spindles in 1880 over the production of those of ten or fifteen years ago is estimated by many careful manufacturers to be at least 20 per cent., and the estimate is usually the same for the production of the best looms of to-day over those of a score of years ago. I know of no systematic attempt to classify the production of looms and spindles on any extensive scale in the past. The results, therefore, of an original investigation in 1880 will be of value to the statistician. The following series of tables shows the product of looms and spindles in 1880 in the eastern states and New York:

MAINE.

	Goods manufactured.	Product of one hundred looms per week.	Number of looms attended by each weaver.	Steam or water power.	Product of one hundred spinners per week.	Hours of labor per week.
1	Cotton cloth.....	16,500 yards.	4 to 6	Steam.....	60,000 pounds.	66
2	Cotton cloth.....	20,000 yards.	Mostly 5	Water.....	No. 33 yarn, 180,000 pounds.	66
3	Cotton cloth.....	18,000 yards.	4 to 6	Water.....	.....	66
4	Cotton cloth.....	18,000 yards.	4 to 6	Water.....	.....	66
5	Cotton cloth.....	21,194 yards.	6	Water.....	48,737 pounds.	66
6	Cotton cloth and bags.....	40 inches, 17,346 yards.	4 to 6	Water.....	.....	66
7	Cotton goods.....	17,000 yards.	4 to 6	Water.....	No. 39 yarn, 87,500 pounds.	66
8	Cotton goods.....	16,000 yards.	4 to 5	Water.....	90,000 pounds.	66
9	Cotton goods, colored.....	22,500 yards.	2, 3, and 4	Both.....	.....	64½
10	Print cloths and silesia cambrics.....	11,406 to 23,400 yards.	Average, 5	Water.....	110,000 pounds.	66
11	Sail and overall duck.....	{ Sail cloth, 35,000 yards. Overall duck, 25,000 yards.	2 to 4	Water.....	50,000 pounds.	66
12	Sheetings.....	No. 33 yarn, 15,600 yards.	4 to 6	Both.....	No. 38 yarn, 90,000 pounds.	66
13	Sheetings.....	18,000 yards.	4 to 6	Water.....	160,000 pounds.	66
14	Sheetings.....	20,000 to 24,000 yards.	5 to 6	Water.....	No. 23 yarn, 200,000 pounds.	66
15	Sheetings.....	15,000 yards.	4 to 6	Water.....	No. 33 yarn, 160,000 pounds.	66
16	Sheetings, etc.....	18,000 yards.	4 to 6	Water.....	.....	66
17	Sheetings and shirtings.....	21,000 yards.	4 to 6	Water.....	No. 23 yarn, 200,000 pounds.	66
18	Warps and grain bags.....	30,000 bags.	4	Water.....	.....	66
19	Warps and grain bags.....	30,000 bags.	4	Water.....	.....	66

NEW HAMPSHIRE.

	Goods manufactured.	Product of one hundred looms per week.	Number of looms attended by each weaver.	Steam or water power.	Product of one hundred spinners per week.	Hours of labor per week.
1	Cotton goods	13,000 to 14,000 yards.	4 to 5	Water		64½
2	Cotton goods	19,500 yards.	6	Water		64½
3	Cotton goods	19,500 yards.	Average, 6	Water		64½
4	Cotton goods	17,000 to 21,000 yards.	4 to 6	Water		64½
5	Print cloths	27,900 yards.	4 to 8	Both	No. 37.30, 87,000 pounds.	69
6	Yarns and fine sheetings	18,000 yards.	4 to 6	Water		69

MASSACHUSETTS.

1	Cottonades	¾ goods, 18,000 yards.	3 to 4	Both		60
2	Cotton cloth	64 × 64, 24,887 yards.	6 to 8	Steam	No. 33 yarn, av. 100,000 pounds.	60
3	Cotton cloth	17,850 yards.	4 to 8	Steam	No. 39 yarn, 70,000 pounds.	60
4	Cotton cloth	23,800 yards.	4 to 8	Steam	No. 39 yarn, 70,000 pounds.	60
5	Cotton cloth	20,250 yards.	2 to 4	Both		60
6	Cotton cloth		4 to 6	Steam	No. 64 yarn, 31,840 pounds.	60
7	Cotton goods		3 to 8	Both		60
8	Cotton goods			Steam		60
9	Cotton goods	27.50 yarn, 19,500 yards.	4 to 6	Steam	27.50 yarn, 120,000 pounds.	60
10	Cotton goods	From 19,800 to 27,000 yards.	4 to 6	Both	{ No. 5 to 36, 70,000 to 200,000 pounds; very coarse, 400,000 pounds. }	60
11	Cotton goods	20,745 yards.	4 to 8	Both	77,100 pounds.	60
12	Cotton goods	17½ yarn, 24,000 yards.	4 to 6	Both	17½ yarn, 140,000 pounds.	60
13	Cotton goods		6 to 8	Steam		60
14	Cotton goods	20,000 yards.	4 to 8	Both		60
15	Cotton goods	28 inches, 19,000 yards.	4 to 8	Both	29½ yarn, 25,000 pounds.	60
16	Cotton goods and hosiery	36-inch sheeting, 17,000 yards.	4 to 6	Both	24 yarn, 200,000 pounds.	60
17	Cotton prints	23,000 yards.	4 to 6	Both	115,000 pounds.	60
18	Cotton and worsted goods	{ Cotton, 32,800 yards. Worsted, 18,000 yards. }	2, 3, and 4	Both		60
19	Duck and yarn	47,120 yards.	Average, 3	Steam		60
20	Flannels, cotton	From ¾ to ¾, 19,000 yards.	Average, 4	Steam		60
21	Ginghams	17,300 yards.	3	Both		60
22	Print cloths	23,756 yards.	Average, 6	Steam	120,000 pounds.	60
23	Print cloths	26,245 yards.	Average, 6	Steam	110,000 pounds.	60
24	Print cloths		Average, 6	Both		60
25	Print cloths	22,500 yards.	4 to 8; mostly 6	Both		60
26	Print cloths	3,500 pounds.	6 to 8	Steam	113,000 pounds.	60
27	Print cloths	26,700 yards.	6 to 8	Steam	100,000 pounds.	60
28	Print cloths		6 to 8	Steam	100,000 pounds.	60
29	Print cloths	24,500 yards.	Average, 6	Steam	110,000 pounds.	60
30	Sheetings, shirtings, etc	20,400 yards.	5 to 6	Both	No. 5 to 20 coarse, 250,000 pounds.	60
31	Sheetings, silesias, and fancy cottons	3,300 pounds.	3 to 6	Steam	{ Mule spinners, 78,600 pounds; frame or ring spinners, 72,222 pounds. }	60
32	Towels and duck	Duck, 30,000 yards.	5	Both		60

RHODE ISLAND.

1	Cotton goods	No. 34 yarn, 18,000 yards.	4 to 6	Both	No. 34 yarn, 118,000 pounds.	66
2	Cotton goods	No. 14 yarn, 18,000 yards.	Average, 5	Both	No. 34 yarn, 118,000 pounds.	63
3	Cotton goods	24,700 yards.	4 to 8	Mostly water	No. 38 yarn, 95,000 pounds.	66
4	Cotton goods	No. 36 yarn, 17,700 yards.	4 to 6	Both	No. 34 yarn, 117,900 pounds.	66
5	Cotton goods	No. 36 yarn, 17,700 yards.	4 to 6	Both	No. 34 yarn, 117,900 pounds.	66
6	Yarns			Both	Estimate, 160,000 pounds.	66
7	Yarns			Both		66
8	Yarns			Water		66
9	Yarns and spool thread			Steam	No. 40 yarn, 92,200 pounds.	66
10	Yarns, spool thread, and knitting cotton			Steam	115,000 pounds.	66
11	Wadding, batting, and wiping waste			Steam		68

CONNECTICUT.

	Goods manufactured.	Product of one hundred looms per week.	Number of looms attended by each weaver.	Steam or water power.	Product of one hundred spinners per week.	Hours of labor per week.
1	Cotton goods.....					
2	Duck.....		1 to 6	Water.....		60
3	Duck.....		1 to 2	Water.....		63
4	Duck.....		2	Water.....		69
5	Duck and sail twine.....			Water.....		69
6	Ginghams and dress goods.....	27 inches, 19,800 yards.	4 to 6	Both.....	100,000 pounds.	66
7	Ginghams and dress goods.....		3 to 4	Both.....		66
8	Hosiery yarn.....			Both.....		60
9	Mosquito netting, etc., cotton.....		3 to 6	Water.....		65
10	Print goods.....	25,800 yards.	4 to 8	Both.....		66
11	Print goods.....	27,850 yards.	4 to 6	Water.....	90,000 pounds.	66
12	Print goods.....	24,000 yards.	4 to 8	Both.....	No. 36 yarn, 60,000 pounds.	69
13	Print cloth.....	23,000 yards.	5 to 8	Both.....		69
14	Print cloth.....	23,077 yards.	4 to 8	Both.....		69
15	Print cloth.....	21,000 yards.	4 to 10	Water.....	No. 37 yarn, 70,000 pounds.	63
16	Prints, sheetings, etc.....	30,300 yards.	5 and 6	Both.....	No. 22 yarn, 144,000 pounds.	69
17	Patent hard-laid twine.....			Water.....		60
18	Seine twine.....			Water.....		60
19	Seine twine and wotting cord.....					69
20	Seine twine, cotton.....			Water.....		69
21	Seine twine and netting cord.....			Water.....		69
22	Sheetings.....	24,000 yards.	4 to 8	Water.....	131,400 pounds.	69
23	Sheetings.....	20,000 yards.	4, 5, and 6	Water.....	{ No. 33 yarn, 124,400 pounds. No. 43 yarn, 82,000 pounds. }	65
24	Sheetings.....	17,000 yards.	4 to 6	Water.....		66
25	Sheetings.....	38½ inches, 33,000 yards.	4 to 6	Both.....	120,000 pounds.	69
26	Sheetings, etc.....	38½ inches, 22,200 yards.	4 to 8	Both.....	{ No. 54 yarn, 50,000 pounds. No. 43½ yarn, 80,000 pounds. }	60
27	Sheetings, light.....	22,000 yards.	4, 5, and 6	Both.....	{ No. 45 yarn, 70,000 pounds. No. 34 yarn, 80,000 pounds. }	66
28	Sheetings and print goods.....	{ 38 inches, 18,360 yards. 23 inches, 16,100 yards. }	4 to 8	Water.....	{ 78,300 pounds. 128,100 pounds. }	66½
29	Sheetings and drills.....	30,000 yards.	4 to 6	Both.....		63
30	Shirtings, cheviot, and denims.....	32,400 yards.	4 to 6	Both.....		69
31	Shirtings, white vestings, etc.....	18,600 yards.	5	Mostly water.....		63
32	Spool cotton.....			Both.....		60
33	Tickings, blue drills, and shirting stripes, cotton.....		3 and 4	Water.....		66
34	Various kinds of cotton cloths.....		4, 5, and 6	Both.....	No. 40 yarn, 84,000 pounds.	72
35	Various kinds of fine cotton goods.....	24,000 yards.	4 to 6	Water.....	No. 45 yarn, 56,700 pounds.	66
36	Warp, cotton.....			Water.....		66
37	Warp, cotton.....			Both.....		69
38	Warp, cotton.....			Water.....		66
39	Warp and yarns, cotton.....			Water.....		66
40	Yarn (for carpets).....			Water.....		69
41	Yarns, cotton.....				No. 36 yarn, 65,000 pounds.	69

NEW YORK.

1	Cotton goods.....	{ Print cloths, 25,800 yards. Fine shirtings, 18,000 yards. }	3 to 6	Water.....	{ Short mules, 62,500 pounds. Long mules, 80,000 pounds. }	63½
2	Fine sheetings and shirtings.....	{ No. 32 yarn, 10,000 yards. 40 inches, }	4	Steam.....	{ No. 35 yarn, 81,000 pounds. No. 21 yarn, 130,000 pounds. }	66
3	Knit underwear.....			Both.....	150,000 to 180,000 pounds.	66
4	Knit underwear.....			Both.....	150,000 pounds.	66
5	Knit underwear.....			Both.....	105,000 pounds.	66½
6	Print cloths.....	30,000 yards.	4 to 6	Both.....	51,100 pounds.	66
7	Print cloths.....	22,000 yards.	4 to 6	Both.....		72
8	Print cloths.....	25,080 yards.	4 to 6	Steam.....	{ No. 28½ yarn, 80,000 pounds. No. 39½ yarn, 75,000 pounds. }	66
9	Print cloths.....	22,000 yards.	4 to 6	Water.....	No. 36 yarn, 72,500 pounds.	66
10	Print cloths.....	26,400 yards.	4 to 6	Both.....		66
11	Print cloths.....		4 to 6	Water.....	No. 40 yarn, 83,700 pounds.	66
12	Print cloths.....	27,000 yards.	3, 4, and 5	Water.....	No. 42 yarn, 60,000 pounds.	66
13	Print cloths and cheese bandages.....	25,500 yards.	4 to 6	Water.....		72½
14	Sheetings and denims.....	24,000 yards.	3, 4, and 5	Water.....	No. 19 yarn, 135,000 pounds.	66
15	Sheetings.....	32,712 yards.	4 to 6	Both.....		66
16	Sheetings.....	32,600 yards.	4	Water.....	No. 20 yarn, 145,000 pounds.	66
17	Sheetings.....	30,720 yards.	5 and 6	Both.....	No. 25 yarn, 135,000 pounds.	66
18	Sheetings, light.....	Yard wide, 19,500 yards.	4 to 6	Water.....		72½
19	Sheetings, light.....	Yard wide, 31,560 yards.	Mostly 5	Both.....	No. 25 yarn, 121,080 pounds.	66

FACTORY LEGISLATION.

The factory system has stamped itself most emphatically upon the written law of all countries where it has taken root, as well as upon the social and moral laws which lie at the bottom of the forces which make written law what it is. With the exception, however, of laws relating to the purely commercial features of the factory system, the legislation which that system has produced has been stimulated by the evils which apparently have grown with it.

In a preceding chapter I have said that as a moral force and as a system the factory system of industry is superior to the domestic system, which it supplanted. Now, in order to consider intelligently the influence of this modern industrial system upon legislation, its evils must be brought into especial prominence, for in showing the effect of the system upon law its evils only are involved, not its merits as compared with the domestic system. It is the worst phases of society which gauge the legislation requisite for its protection. Laws other than those for the regulation of trade and the protection of rights and their definition are made for the restraint of the evil disposed, and do not disturb those whose motives and actions are right. We have a way of judging society by its worst products. This is very true of writers upon social topics; they are apt to select the worst by which to judge the whole. Parliamentary and legislative committees, raised with a view to passing or killing a factory measure and working for or against certain interests, have repeatedly adopted the plan of judging all by a few cases.

The social battles which men have fought have been among the severest waged for human rights, and they mark eras in social conditions as clearly as do field contests, in which more human lives have been lost, perhaps, but in which no greater human interests have been involved. Among these social contests may be classed the efforts of humane men to correct so-called factory evils.

At the time of the institution of the factory system there were but few laws relating to master and man upon the statute-books of England; those which did exist bore mostly upon criminal matters. One law was in force which had been considered by many an obstruction to advancement in the mechanic arts, but which under the factory system was to become the only point upon which, under prevailing sentiments, labor legislation could turn. This law was known as the "apprentice act", and was passed in 1562, during the reign of Elizabeth. It is to be found in 5 Elizabeth, c. 4. This law provided that no one should work in certain trades as journeyman until after an apprenticeship of seven years. It also instituted the custom of apprenticing pauper children by parish officers. Under the protection of law the worst practices grew up. The act referred to allowed apprentices to be worked from 5 a. m. to between 7 and 8 at night from March to September, and from September to March, as the law expresses it, "from the spring of the day" till the night closed in.

When the first cotton factories were erected in England, and before the steam-engine was sufficiently perfected to enable mills to be run by it, Derbyshire, Nottinghamshire, and Lancashire were selected as the best localities, because they abounded in water-courses sufficient for the supply of power. These factories became so numerous that the supply of children from their respective neighborhoods was soon found to fall far short of the demand. The reverse of this condition prevailed in the southern agricultural counties, where general misery existed on every side, and unprincipled poor-law guardians, anxious to rid their parishes as speedily as possible of pauper children, showed great eagerness to meet the requirements of large industrial establishments for cheap labor. Children were therefore transferred in large numbers to the north, where they were housed in pent-up buildings adjoining the factories and kept to long hours of labor. The work was carried on day and night without intermission, so that the beds were said never to have become cold, inasmuch as one batch of children rested while the other went to the looms, only half the requisite number of beds being provided for all.^(a) Notwithstanding the evil disposition of poor-law guardians and of grasping employers, there is no doubt that the condition of these children was better under employment in mechanical industries than under a state of pauperism in agricultural districts. This, however, was no reason for the abuse of the innocents.

Another element entered into the causes which led to the employment of pauper children. When the first factories went into operation, it soon became apparent that there was in the minds of the people considerable repugnance to the employment of children in them; in fact, there was strong antipathy to factories themselves because they were innovations. The native domestic laborers considered themselves amply able to provide for their children, and so rejected the offers of liberal wages made by the mill-owners. For a long period it was by the working people themselves considered to be disgraceful for any father to allow his child to enter the factory; in the homely words of that day, that parent made himself "the town's talk", and the unfortunate girl so given up by her parents in after life found the door of household employment closed against her "because she had been a factory girl". It was not until the condition of portions of the working classes had been reduced that it became the custom with workingmen to eke out the means of their subsistence by sending their children to the mills. Until that sad custom prevailed the factories in England were worked by "stranger children", gathered together from the workhouses. Under the operation of the old apprentice system parish apprentices were sent, without remorse or inquiry, from the workhouses in England and the public charities of Scotland to the factories, to be "used up" as the "cheapest raw material in the market". This reprehensible method was systematically

^a *English Factory Legislation*, Edler von Plener, page 2.

practiced; the mill-owners communicated with the overseers of the poor for negotiations for supply. The general treatment of these apprentices depended entirely upon the will of their masters, and while some of the latter could not bury the natural feelings of sympathy for the unfortunate, and did all in their power to relieve want and suffering, the majority, in the infancy of the new system, did not comprehend the effects ill treatment of one generation might have upon the succeeding.

The introduction of steam as a motor in mills removed the necessity of erecting factories upon streams and allowed owners to build in or near populous towns, from which the needed supply of help could always be obtained. These towns were exempt from the general operations of the apprentice act, except as to parish apprentices.

Now for the first time appeared some of the consequences of congregated labor under the influence of simply natural forces without the restrictions of positive legislation. (a) A whole generation of operatives was growing up under conditions of comparative physical degeneracy, of mental ignorance, and of moral corruption. The great questions began to be asked, Has the nation any right to interfere? Shall society suffer that individuals may profit? Shall the next and succeeding generations be weakened, morally and intellectually, that estates may be enlarged?

These questions forced themselves upon the public mind, and the fact that pauper apprentices might be better off under such apprenticeship than in the workhouse could have no weight under the influence of the great religious and moral waves which swept over England in the last quarter of the last century. The truth began to dawn that in factories, as in nations or in families, if those who rule do so through the power of fear and the capacity to punish arbitrarily the result is a poor, cringing operative population or poor, cringing subjects.

The first man to ask such questions of parliament was Sir Robert Peel, in 1802. Sir Robert was a master manufacturer, to whom the new system had brought wealth and power and station, and to his immortal honor he sought to remedy the evils which he knew, from his own personal experience, had grown with the factory system. In 1802 he introduced a bill the object of which was to interfere by law with the natural tendencies of unrestricted competition in the labor of human beings. As the system which Peel's bill sought to regulate was from its infancy crude in its workings, so the legislation sought was crude and had no very far-reaching provisions; yet it aimed at the weakness of the new industrial order, and would, if successful, establish a principle in law which should influence the enactments of the legislatures of the world.

The friends of the new theory did not go beyond the regulation of the labor of parish apprentices. The bill was entitled "An act for the preservation of the health and morals of apprentices and others employed in cotton and other mills, and in cotton and other factories". Says the duke of Argyle:

It is characteristic of the slow progress of new ideas in the English mind, and of its strong instinct to adopt no measure which does not stand in some clear relation to pre-existing laws, that Sir Robert Peel's bill was limited strictly to the regulation of the labor of apprentices; children and young persons who were not apprentices might be subject to the same evils, but for them no remedy was asked or provided.

Such is the power of precedent, which is too often only another term for tradition. "The notion," as to Peel's measure, was—

that as apprentices were already under statutory provisions, and were subjects of a legal contract, it was permissible that their hours of labor should be regulated by positive enactment. But the parliament, which was familiar with restrictions on the products of labor, and with restrictions of monopoly on labor itself, which restrictions were for the purpose of securing supposed economic benefits, would not listen to any proposal to regulate "free" labor for the purpose of avoiding even the most frightful moral evils. These evils * * * were incident to the personal freedom of employers and employed. In the case of apprentices, however, it was conceded that restriction might be tolerated. And so through this narrow door the first of the factory acts was passed, (b)—

and the system, by unmistakable signs, stamped its influence upon the legislation of England. The conduct of men, both individually and collectively, as influenced by the natural course of events, is illustrated in the clearest light by the history of the first factory legislation.

In the first place, the principle which was deemed objectionable became prominent in factory legislation, for the old law of 1562, the apprentice act, heretofore an obstacle, became the very precedent the lawmakers of England must have before they could consent to protect human rights. Again, if the steam-engine had been invented earlier—if mills had not at first been erected upon streams away from the centers of population, thereby enabling poor-law guardians to reduce the pauperism of agricultural districts—it would be impossible to say how long the initiatory evils of the factory system would have been allowed to fester and impair the physical and moral well-being of a growing class, without even an assertion of the right of the nation to check the evils. The act of Sir Robert Peel, 42 and 43 Geo. III, cap. 73, while of no great practical value to the operatives, was of the greatest value to the world, for it made the assertion, which has never been retracted, that the nation did have the right to check not only open evils, but those which grow individually through the nature of employment. (c)

This first factory-legislation act of 1802 simply dealt with the unregulated employment of apprentices. By its provisions the employer was compelled to clothe his apprentices, whose work was now limited to twelve hours a day. Night work was entirely prohibited, with some minor exceptions, and every apprentice was to receive daily instruction during the first four years of his time, school attendance to be reckoned as working time. Religious

instruction on Sundays was distinctly regulated, and some useful sanitary clauses were inserted in the law. Although this law was well digested, it proved inoperative in great measure, through want of the necessary provisions for carrying it into effect, the still undetermined state of the new manufacturing system, and the revolution wrought by the adaptation of steam to manufacturing purposes. This adaptation, as I have said, removed the necessity of erecting factories upon water-courses, and supplied a great desideratum, in many respects, by allowing their establishment in populous towns, whose needy inhabitants afforded a sufficient number of employes to satisfy the first requirements of manufacturers. Those children, therefore, whose parents resided in the neighborhood of such factories were admitted into them without participating in the protection provided in the act of 1802, because such children were not apprenticed under the act of 5 Elizabeth, or under the apprentice act.

The question of repealing this latter act now began to be agitated. Numerous petitions were sent to parliament for its repeal, both by masters and those who saw that if the apprentice act should be repealed a law must be passed that would protect all children at work in the factories; the masters saw that the repeal of the act of 5 Elizabeth rendered Peel's act of 1802 inoperative.

In 1814 the apprentice act was substantially repealed, and in 1815 Sir Robert Peel came back to parliament and told the country that the former act, that of 1802, "had become useless, that apprentices had been given up, but that the same exhausting conditions, from which parliament had intended to relieve apprentices, was the lot of thousands and thousands of the children of the free poor." In the following year (1816), pressing upon the house of commons a new measure of restriction, he added, that unless the legislature extended to these children the same protection which it had intended to afford to the apprentice class it had come to this, that the great mechanical inventions which were the glory of the age would be a curse rather than a blessing to the country. (a) The author of the *Reign of Law*, in commenting upon the early efforts in favor of the restriction of labor by legislation, says:

Thus began the great debate which in principle may be said to be not ended yet; the debate, how far it is legitimate or wise in positive institution to interfere for moral ends with the freedom of the individual will? Cobbett denounced the opposition to restrictive measures as a contest of "mammon against mercy". No doubt personal interests were strong in the forming of opinion, and some indignation was natural against those who seemed to regard the absolute neglect of a whole generation, and the total abandonment of them to the debasing effects of excessive toil, as nothing compared with the slightest check on the accumulations of the warehouse. But the opposition was not due in the main to selfishness or indifference. False intellectual conceptions, false views both of principle and of fact, were its real foundation. Some of the ablest men in parliament, who were wholly unaffected by any bias of personal interest, declared that nothing would induce them to interfere with the labor which they called "free". Had not the working classes a right to employ their children as they pleased? Who were better able to judge than fathers and mothers of the capacities of their children? Why interfere for the protection of those who already had the best and most natural of all protectors? * * * Nor were there wanting arguments, founded on the influence of natural laws, against any attempt on the part of legislative authority to interfere with the "freedom" of individual will. The competition between the possessors of capital was a competition not confined to England. It was also an international competition. In Belgium, especially, and in other countries, there was the same rush along the new paths of industry. If the children's hours of labor were curtailed, it would involve of necessity a curtailment also of the adult labor, which would not be available when left alone. This would be a curtailment of the working time of the whole mill, and this would involve a corresponding reduction of the produce. No similar reduction would arise in foreign mills. In competition with them the margin of profit was already small. The diminution of produce from restricted labor would destroy that margin, capital would be driven to countries where labor was still free from such restrictions, and the result would be more fatal to the interests of the working classes of the English towns than any of the results arising from the existing hours of labor. All these consequences were represented as inevitable. They must arise out of the operation of invariable laws. Such were the arguments used in every variety of form, and supported by every kind of statistical detail, by which the first factory acts were opposed.

I have been quite explicit in stating these arguments, because in all subsequent movements they have been repeated again and again, and may be heard in debate in every session of legislatures in this country every time any proposition is made to protect labor.

The abolition of the apprentice system, by which the act of 1802 became useless, stimulated Peel and the friends of factory legislation to greater efforts, and in 1816 parliament instituted the first government inquiry into the condition of the factory population. It was not, however, till 1819 that a new law (59 Geo. III, c. 66) was enacted. This law established the right of the nation to limit the age at which children might be admitted to the factories. No child under nine years could be admitted, and the hours of labor were limited to twelve per day for children between nine and sixteen. This new law, unlike that of 1802, was applied to cotton-mills only, while the first applied to both cotton and woolen factories. While provisions of law relating to the education of factory children were to be commended, they were nevertheless what might be termed curiosities of legislation.

The greatest poverty and ignorance prevailed in the agricultural and mining districts of England, and after the reports of the poor-laws commissioners had exposed the demoralizing results of the want of education in the agricultural hamlets it was really a piece of singular effrontery on the part of the legislators to accuse the manufacturers of being the main authors of the miserable state of affairs found among the tillers of the soil, and to require the employers of factory labor, under heavy penalties, to be responsible for the education of all juvenile operatives whom they employed. Until a recent date law has insisted upon the education of factory children only, so far as England is concerned, and, whether from good or bad motives in the framers of such laws, the factory system has been made the central point upon which popular education in England has turned, and this accounts

in a large degree for the superior intelligence of the factory population of that country when compared with those engaged in agriculture. In this very direction the influence of the new order of industry upon legislation is clearly marked.

From 1816 to the present time there has been no cessation in the attempts to regulate by law some of the conditions of labor. All the wonderful reports from parliamentary committees make in themselves a vast library of information and misinformation which cannot be briefed in this volume, and, in fact, it is not essential; for, as I have said, every legislative contest took on the same general features of attack and defense. It was not till 1847 that the friends of labor succeeded in passing a ten-hour law. After 1847 the provisions of the English factory acts were extended first to one industry and then to another, until now they comprehend many of the leading lines of production.

The principles involved in the earlier legislation were made to apply to the working of mines, in which great abuses in the employment of women and young children had become the rule. The amelioration of the horrid condition of the workers in the mines was the result of the influence of the factory system upon law. The care of the pauper children of England became the subject of the deepest solicitude from the same influence. The same is true of the education of the masses. The legislative provisions relative to chimney-sweeps and various special employments are all due to the same influence. The continental governments of course have been obliged to make regulations covering kindred subjects, but rarely have they kept pace with English legislation. America has enacted progressive laws so far as the condition of factory workers has warranted. It should be remembered that the abuses which crept into the system in England never existed in this country in any such degree as we know they did in the old country. Yet there are few states in America where manufactures predominate or hold an important position in which law has not stepped in and restricted either the hours of labor or the conditions of labor and insisted upon the education of factory children, although the laws are usually silent as to children of agricultural laborers.

It is not wholly in the passage of purely factory acts that the factory system has influenced the legislation of the world. England may have suffered temporarily from the effects of some of her factory legislation, and the recent reduction of the hours of labor to nine and one-half per day, less than in any other country, has had the effect of placing her works at a disadvantage; but in the long run England will be the gainer on account of all the work she has done in the way of legislative restrictions upon labor. In this she has changed her whole policy. Formerly trade must be restricted and labor allowed to demoralize itself under the specious plea of being free; now trade must be free and labor restricted in the interests of society, which means in the interest of good morals. The factory system has not only wrought this change, but has compelled the economists to recognize the distinction between commodities and services. There has been greater and greater freedom of contract in respect to commodities, but the contracts which involve labor have come more and more completely under the authority and supervision of the state.

Seventy-five years ago scarcely a single law existed in any country for regulating the contract for services in the interest of the laboring classes. At the same time the contract for commodities was everywhere subject to minute and incessant regulation. (*a*)

Factory legislation in England, as elsewhere, has had for its chief object the regulation of the labor of children and women; but its scope has constantly increased by successive and progressive amendments until they have attempted to secure the physical and moral well-being of the workingman in all trades, and to give him every condition of salubrity and of personal safety in the workshops.

The excellent effect of factory legislation has been made manifest throughout the whole of Great Britain. "Physically the factory child can bear fair comparison with the child brought up in the fields," and intellectually progress is far greater with the former than with the latter. Public opinion, struck by these results, has demanded the extension of protective measures for children to every kind of industrial labor, until parliament has brought under the influence of these laws the most powerful industries.

To carry the factory regulations and those relative to schooling into effect England has an efficient corps of factory inspectors. The manufacturers of England are unanimous in acknowledging that to the activity, to the sense of impartiality, displayed by these inspectors is due the fact that an entire application of the law has been possible without individual interests being thereby jeopardized to a very serious extent. It is also now freely admitted that factory legislation, wisely prepared, prudently applied, and ripened by experience, cannot be otherwise than productive of useful results nor do aught but exercise a salutary influence over the economical and moral conditions of labor. It is true that in a country where, in general, the moral condition of the working classes has presented the saddest of pictures such legislation has wrought an improvement in the morals and exerted a notable influence on the health and habits of the working classes. The field is still large, and all the virtues of public sentiment will be needed to influence wise regulations. Such legislation has also bestowed substantial advantages upon industry itself, since the work, being performed by cleverer hands, gains both in quality and in rapidity of execution.

While it may be impracticable to compel people by legislation to be moral, they can be surrounded by the best moral and sanitary conditions and their lives and their limbs can be protected. The legitimate field for legal

interference is very broad, and such interference has met with the highest judicial sanction. No argument of unconstitutionality can be made very effective in the premises.

The conditions belonging to the factory system are constantly forcing themselves into view as the levers which overturn old notions and establish precedents at variance with the opinions of judges. One of the greatest changes in the principles of law which the factory system has wrought is in relation to the liability of employers for injuries received by their workmen. The attempts to make employers thus liable have proceeded first from the factory, but have included the railroad in the list. A brief examination of this subject, one of the most interesting in relation to labor legislation, cannot be otherwise than profitable. The question as to how far employers shall be held liable in damages to their employes for accidents occurring through the negligence of co-employes is creating a good deal of discussion in England, and has, in a limited degree, already commanded attention in this country.

The common-law doctrine, both in England and in the United States, is that common employment relieves the employer from responsibility for the injuries which one employe may receive through the negligence of a co-employe, unless negligence can be shown in the employment of unfit agents. To be more specific, if a brakeman upon a train meets with an accident through the negligence of a switchman, although they are in no sense associated in their duties, the brakeman can have no redress against the company. A stranger, however, upon the same train could recover damages if an injury was sustained. The first time this doctrine was held by a court, so far as record shows, was in England, in *Priestly vs. Fowler*, in 1837, when it was laid down by Lord Abinger that the servant by implication contracts to run the risks incident to the service in which he engages. This doctrine, with that which holds that common employment relieves the employer of responsibility for damages resulting from negligence of co-employes, would have been held before, as the learned justice remarked, had the matter ever been brought before a court; that is, he held it to be the law, but occasion had not before offered for its announcement. The law, then, was judge-made, and it could not be overturned without legislation, for a precedent is sacred in the eyes of courts.

The same doctrine received a strong indorsement in the United States in 1842, in Massachusetts, in the case of *Farwell vs. The Boston and Worcester Railway Company*, when Chief Justice Shaw, in giving the decision of the supreme court, not only reiterated the doctrine laid down by Lord Abinger, but added much to the force of his lordship's reasoning by the extent of learning applied in the scope of the decision. To-day the ruling of Judge Shaw forms the leading citation, not only in this country, but in England. During the recent extended parliamentary contract for legislative interference with the doctrine of the courts Judge Shaw's decision constituted the main support of those who opposed any restriction of the doctrine. The language of this decision was incorporated into the report of a parliamentary committee raised to consider the question of employers' liability and used against a bill looking to legislative change in the common law.

The doctrine, as I have stated it, is the law of this land, with, I think, a single exception and some modifications. In Iowa, statute law provides that—

Every railroad company shall be liable for all damages sustained by any person, including employes of the company, in consequence of any neglect of its agents, or by any mismanagement of its engineers or other employes of the company.

This law applies only to railroads, the common law applying in all other cases.

It is true in most countries that parties seeking work in factories or on railroads can make a special contract relative to damages in case of accident through the negligence of co-employes, but this privilege throws the burden on the shoulders of the workman.

The employer is now liable for two classes of injuries caused by fellow-workmen: when he has directly interfered in the act which caused the injury, and when by his negligence in selecting he has employed an incompetent workman. In all other cases, except where special legislative restriction exists, he is not liable for injuries to co-workmen unless by special contract he assumes to become liable; but the employer never, or rarely, suggests such contract; this must come from the workman.

It is now sought to change the status of the parties by legislative action and make the employer also liable for all injuries caused by his authorized agents in the legitimate performance of the duties which he has prescribed, such regulation to apply to industrial works and railroads. Such a law would place the necessity of proposing a special contract upon the employers, instead of upon the workman seeking employment. Legislatures in America have felt in some degree the influence brought to bear in favor of some law upon the subject.

In England the ancient doctrine has been reversed to a very large degree by the employers' liability act, passed in September, 1880. The new law is one of the most striking instances of the influence of the factory system upon legislation, for in its provisions it takes in various and important interests not strictly within the term. The English law of September 7, 1880, which falls far short of what was demanded, was the result of stormy debates and contests extending over a term of years, and its provisions mark a new era for good or evil in the great interests which have been developed through the perfection of the factory system. In brief, the law provides that when personal injury is caused to a workman by reason of any defect in the ways, works, machinery, or plant connected or used in the business of the employer; or by reason of the negligence of any person in the service of the employer who has any superintendence intrusted to him, while in the exercise of such superintendence; or by reason of the negligence

of any person in the service of the employer to whose orders or directions the workman at the time of the injury was bound to conform, and did conform, when such injury resulted from his having so conformed; or by reason of the act or omission of any person in the service of the employer done or made in obedience to the rules or by-laws of the employer, or in obedience to particular instructions given by any person delegated with the authority of the employer in that behalf; or by reason of the negligence of any person in the service of the employer who has charge or control of any signal points, locomotive engine, or train upon a railway; in all these cases the workman shall have the same right of compensation and remedies against the employer as if he had not been a workman of or in the service of the employer. These are the main features of the latest legislative phase of factory agitation; and although the law provides for several exceptions, yet it completely reverses the old order of things—the judge-made law—which put the workman on a separate basis from the stranger.

The new doctrine must of course be recognized more fully in our courts, or more probably in our legislatures, and with such recognition there will come a change in the relations of employers and employed, the nature of which in its indirect and permanent effects it is difficult to foresee. It is the most difficult question of all those which have grown out of the factory system, and calls for much wise statesmanship. Every one admits the justice of some regulation; and to adjust all parts of it and do no great injustice will tax the ingenuity of our lawmakers. While the question of employers' liability is the most important one to grow out of the factory system, it is the latest one of magnitude.

A brief digest of the factory laws of different countries must be of value in a report upon the factory system as indicative of the influence of the system outside the channels of business.

In no other country is there so elaborate a code of factory laws as the "British factory and workshop act" of 1878, 41 Vict., chap. 16, it being an act consolidating all the factory acts since Sir Robert Peel's act of 1802.

GREAT BRITAIN.—The following is an analysis of the factory and workshop act of 1878 so far as it applies to textile factories:

Sanitary provisions.

Every factory to be kept in a cleanly state, free from effluvia, etc., to be well ventilated, not to be overcrowded. If an inspector observe a nuisance, he must report to sanitary authority.

Inspector authorized to take medical officer of health, etc., with him into the factory.

Every factory to be limewashed once in fourteen months, unless painted in oil once in seven years, when it must be washed once every fourteen months.

The secretary of state may exempt from this provision any class of factory, or part thereof, not requiring it for the purpose of cleanliness.

A child, young person, or woman not to be employed in wet-spinning, unless means are taken to prevent their being wetted and to prevent the escape of steam.

Safety and accidents.

Hoist or teagle, steam-engine, water-wheel, and mill gearing to be securely fenced.

Inspector may give notice of machinery or of a vat or pan containing hot liquid, or metal, considered to be dangerous, or grindstone fixed in a faulty manner. Provisions made for submitting question to arbitration.

Employment of a child in cleaning machinery in motion, and of a child, young person, or woman in cleaning mill gearing in motion, prohibited.

Employment between fixed and traversing parts of a self-acting machine forbidden.

Notice of accidents to be sent to the inspector and certifying surgeon: if fatal; if caused by machinery moved by power, or vat or pan, and so as to prevent the injured person returning to his work for forty-eight hours after the accident, the certifying surgeon to report the same to the inspector.

If any person suffer bodily injury from neglect of fence, machinery, etc., required to be fenced, the occupier is liable to a penalty of £100, which may be applied by the secretary of state for the benefit of the injured person.

Employment and meal hours.

A child, young person, or woman not to be employed except during period of employment stated in notice.

Young persons and women.

The period of employment, inclusive of meal hours, shall be either between 6 a. m. and 6 p. m. or between 7 a. m. and 7 p. m.

On Saturday, when work commences at 6 a. m., if not less than one hour be given for meals, manufacturing processes must cease at 1 p. m. and all other work at 1.30 p. m. If less than one hour be given for meals, manufacturing processes must cease at 12.30 p. m. and all other work at 1 p. m.

On Saturday, when work commences at 7 a. m., manufacturing processes must cease at 1.30 p. m. and all other work at 2 p. m.

If the occupier of a factory be of the Jewish religion, and close his factory on Saturday until sunset, he can employ young persons and women until 9 p. m. on Saturday.

All young persons and women must have two hours for meals during the period of employment, of which one hour must be given before 3 p. m.

On Saturday at least half an hour must be given.

A young person or woman not to be employed for more than four hours and a half without an interval of half an hour.

Children.

Children are to be employed either morning or afternoon, or on alternate days.

The period of employment for a child begins and ends the same as for a young person.

Children in the morning set must cease work at the dinner hour, but not later than 1 p. m.

Children in the afternoon set begin at the end of the dinner time, but not earlier than 1 p. m.

Children may work on Saturdays as young persons.

A child shall not be employed on Saturday in two successive weeks, nor on Saturday in any week if on any other day in the week he has worked more than five hours and a half.

Children working on alternate days may work as young persons, but must not work on two successive days, nor on the same days in two successive weeks.

When a child is employed as a young person, he must have the same intervals for meals as a young person.

A child not to be employed more than four hours and a half without an interval of half an hour.

Holidays.

Every child, young person, and woman shall be allowed the following holidays:

The whole of Christmas day and the whole of Good Friday; or, instead of Good Friday, the next public holiday under the holidays extension act, 1875.

Notice must be given of such holidays, and be fixed up in the factory.

A half-holiday shall comprise one-half of the period of employment on some other day than Saturday.

A child, young person, or woman shall not be employed on any day or part of a day set apart for a holiday.

In Scotland, instead of Christmas day and Good Friday, two days shall be set apart for holidays, separated by an interval of three months, one of which shall be the day set apart for the Sacramental Fast of the parish, or some other day substituted therefor by the occupier.

Eight half holidays, or equivalent whole holidays, of which half shall be given between 15th March and 1st October following.

In the factory of a Jew, in which all the persons employed are Jews, two bank holidays may be given instead of Christmas day and Good Friday.

In Ireland the 17th of March must be given, and will reckon as two of the eight half-holidays.

Education of children.

The parent of a child shall cause such child to attend a recognized efficient school, which may be selected by himself.

A child, when employed in a morning or afternoon set, shall attend school for one school attendance on each day of every week during any part of which he may be employed.

A child when employed on alternate days must attend school for two school attendances on each alternate day.

Attendance at school must be between 8 a. m. and 6 p. m.

A child is not required to attend school on Saturdays, or on any holiday or half-holiday in pursuance of this act.

Non-attendance caused from sickness, etc.

When there is not a certified school within two miles of the child's residence, the child may attend some other school temporarily approved by an inspector.

A child who has failed to attend school regularly cannot be employed the following week unless the deficient attendances be made up.

The occupier shall obtain certificates from a schoolmaster of the school attendance of the children employed in his factory, and keep such certificates for two months and produce the same to the inspector.

The school managers may apply in writing to an occupier to pay the school fees, not exceeding 3d. per week, or one-twelfth of the wages of a child, which the occupier may deduct from the wages of the child.

When a child of thirteen has obtained a certificate of proficiency either of having passed the prescribed standard, or of having attended school the prescribed number of attendances, he is deemed to be a young person.

Certificates of fitness for employment.

A person under sixteen shall not be employed for more than seven, or, if the certifying surgeon resides more than three miles from the factory, thirteen working days, unless the occupier has obtained from the certifying surgeon a certificate in the prescribed form of the fitness of employment of such person.

A certificate of fitness shall not be given unless a certificate of birth be produced, or other proof of real age.

When an inspector considers any person under sixteen unfit to work, he may give notice to the occupiers, and the person shall not be employed more than seven days, unless certified by the certifying surgeon to be fit for work.

An inspector may annul a certificate of a certifying surgeon if certificate of age of the person named therein was not produced if he think the person under the age named in the certificate.

When a child becomes a young person, a fresh certificate of fitness must be obtained.

A certificate of fitness shall only be granted on personal examination.

The same certificate of fitness may be valid for all the factories in the occupation of the same occupier in the district of the same certifying surgeon.

A certifying surgeon shall examine persons only at the factory where such persons are employed, unless the number of children and young persons is less than five, or unless specially allowed by an inspector.

Certifying surgeons to be appointed by an inspector.

Fees to be paid to the certifying surgeon.

Where there is not a certifying surgeon within three miles, the poor-law medical officer to act as certifying surgeon.

Regulations as to meal times.

All children, young persons, and women to have the times allowed for meals at the same periods of the day.

A child, young person, or woman is not allowed to remain in any room where a manufacturing process is being carried on, or to be employed during a meal time.

Notice of meal hours to be fixed up—of hours of work, etc.

Prohibitions of employment.

A child shall not be employed under the age of ten years.

A child, young person, or woman shall not be employed on Sunday; but

If the occupier be of the Jewish religion, and close his factory on Saturday, both before and after sunset, a Jewish young person or woman may be employed on Sunday the same as if Sunday were Saturday.

Overtime and night-work.

Male young persons of sixteen years of age may be employed in lace factories between 4 a. m. and 10 p. m., under certain conditions.

If the occupier be of the Jewish religion and keep his factory closed on Saturday, both before and after sunset, he may employ the young persons and women one hour on every other week day, but not before 6 a. m. or after 9 p. m.

Secretary of state may authorize employment of young persons and women to recover lost time in water-mills at the rate of one hour per day, for not exceeding ninety-six days in case of drought and not exceeding forty-eight days in case of flood.

The secretary of state, where cleanliness, etc., is deficient, may, by order, direct the adoption of special means as a condition of the exceptional employment.

Where an exception has been authorized, and it is found to be injurious to health, the secretary of state may by order rescind such exception.

Miscellaneous regulations.

Notice to be hung up of times of work and meals:—Abstract of act. Names of inspectors and certifying surgeons. Clock by which hours of work are regulated.

Notice of special exception to be hung up, and notice to be sent to inspector.

When working under special exception, same to be entered in a register.

Register of young persons under sixteen years of age to be kept, with details, as prescribed by the secretary of state. Extracts to be sent when required to the inspector.

Hours of work to be regulated by a public clock.

Any person in a factory while machinery is in motion deemed to be employed, unless the contrary be proved.

Occupier of factory to send notice to inspector within one month of commencing to work a factory.

Inspectors of weights and measures authorized to examine weights and measures used for checking wages, etc.

AUSTRIA-HUNGARY.—The factory laws and regulations are found in the factory law of December 20, 1859, and the Hungarian trade and manufactory law of 1872, of which laws the following is an analysis:

The regulations relating to workmen employed in trading establishments have equal force in the case of factory workmen.

The proprietor of a factory is bound to keep a regular register, showing the name, age, birthplace, occupation, and wages of every workman employed by him, and to produce this register whenever called upon to do so by the authorities.

A table is to be hung up in each workshop, in which the following information is to be contained :

(a) The disposition and employment of the workmen, and particularly the manner in which the women and children are occupied as bearing upon their bodily strength, and, in the case of children, on their school duties.

(b) The duration of working hours.

(c) Regulations relating to the settlement of accounts and payment of wages.

(d) Rights accorded to the workmen.

(e) Treatment of workmen in case of illness or accident.

(f) Fines for transgression of the factory regulations.

(g) The period of giving notice and cases in which contracts may at once be declared void.

A duplicate of this table is to be given to the authorities.

Every proprietor of a factory is bound, at his own expense, to make all arrangements and to take all possible measures for securing the life and health of his workmen in the exercise of their duties.

The education laws require that children under ten years of age shall in no case be allowed to work in factories, and children over ten, but under twelve years, only with the consent of the authorities.

This consent is only to be given when regular attendance at school can be combined with factory employment, or when arrangements are made by the employer for the education of the children by establishing schools in accordance with the regulations of the educational authorities.

Children above twelve but under fourteen years of age may only be employed in factories at the most for eight hours a day.

Young workmen who have passed their fourteenth year, but are under sixteen, may only be employed for ten hours a day.

Workmen under sixteen years of age may, in general, only be employed on work which in no way injures their health and is not prejudicial to their physical development.

A law relating to night-work of apprentices is also applicable to factory workmen under sixteen years of age.

The workmen are to be allowed half an hour's rest in the morning and afternoon and a whole hour at midday.

In factories where work is carried on day and night the proprietor is bound to take proper precautions for the employment by relays of workmen whose services are required at night.

Day-work may not begin before 5 a. m. nor be extended beyond 9 p. m.

The employer is bound to pay his wages in ready money, and regularly once a week, unless some other arrangement is made. He may not supply the workmen with goods or spirits on credit; but he may furnish his workmen, should the latter agree, with lodging, firewood, use of the soil, regular board, medicines, and medical assistance, and deduct the cost on payment of the wages. He may also, on the same conditions, supply his workmen with the tools and materials necessary for the make of articles produced in his factory, in cases where the workmen are bound by contract to supply such tools and materials on their own account.

Claims for goods supplied to workmen on credit, contrary to the existing regulations, cannot be enforced by the employer by legal measures, nor by reckoning them against wages that may be due.

Contracts which contain any clauses contrary to the last three provisions have no binding force.

Arrangements, too, concluded between employer and workmen, according to which the latter are obliged to obtain their daily wants at particular shops, or to expend part of their wages for any purposes other than the amelioration of the position of the workmen, are not considered valid.

The factory authorities are bound to allow the establishment to be visited from time to time by persons sent for that purpose, and to assure themselves that the regulations of the law are duly observed.

Certain articles in proposed new factory law (1882).

Children under twelve years of age must not be employed in regular trades. Children between the ages of twelve and fourteen can be employed at the most for six hours a day, and their employment must not interfere with their attendance at school.

Young workmen who have passed their fourteenth year, but are under sixteen, and also women between the ages of sixteen and twenty-one, can only be employed for ten hours daily.

In the event of any unforeseen occurrence or accident interfering with the regular course of business or necessitating increased work, the trade authorities can permit an extension of time, not exceeding an hour, for a period of four weeks at the most.

The minister of commerce is empowered to prohibit or restrict the employment of young workmen and women in trades which are dangerous or injurious to health.

Young workmen or women between sixteen and twenty-one must not be employed before 5 o'clock in the morning or after 9 o'clock in the evening, and there must be an interval of an hour's rest between the hours of labor.

The minister of commerce can, however, modify this rule for certain trades, in conjunction with the chambers of commerce and trade inspectors and the sanitary authorities, but the total time of employment must never exceed the maximum fixed as above.

Women must not be employed during the six months following their confinement.

Young workmen and women between the ages of sixteen and twenty-one must not be employed on Sundays and holidays, except in cases where the work cannot possibly be interrupted or deferred.

Traders who employ young workmen must keep a register showing their names and ages and the names and addresses of their parents or guardians, and also the dates of their first employment and discharge. This register must be hung up in the place where the work is carried on, and the trade authorities must be furnished with a copy.

FRANCE.—The hours of labor for adults in factories, etc., permitted by the laws of France are twelve daily.

A bill to reduce them to ten was last year submitted to the legislature by a deputy, but it was rejected; and the same deputy thereupon introduced a measure (not yet carried) to provide for the more strict fulfillment of the law as it stands. In Paris the law is executed, and is fairly applied in most of the northern and eastern departments, at least as regards the large mills, but doubts seem to exist as to its strict observance in the Lyons and Marseilles districts, and supervision would appear to be thought inadequate for insuring its proper application in the smaller workshops in the provinces.

The employment of children is prohibited until they have attained the age of twelve in the case of boys and sixteen in that of girls, except in certain specified descriptions of labor, in which it is allowed to employ boys between the ages of ten and twelve, on condition, however, of the working hours not exceeding six daily and being divided by a period of rest.

Night-work, viz, between the hours of 9 p. m. and 5 a. m., is forbidden for boys below the age of sixteen and for girls under twenty-one years of age. But under exceptional circumstances this restriction may be temporarily suspended and permission extended to the employment of boys under twelve years of age, such exceptional circumstances to be determined by the local committee or by the inspector. On Sundays and holidays children are not allowed to work, but an exception is made in the case of factories where it is necessary to keep fires going continuously, indispensable labor being then permissible on such days, and also at night.

Female labor is forbidden underground, nor is such work allowed for boys below the age of sixteen. Certain exceptions exist, however, where boys of twelve may be employed below the surface, but the duration of their labor must not exceed eight hours out of the twenty-four, with an interval of at least one hour's rest.

GERMANY. (a)—The settlement of relations between trade employers and their work-people is a subject for free agreement, subject to the restrictions founded by imperial law.

Employers cannot oblige their work-people to work on Sundays and holidays. Works of such a nature as not to permit of an interruption or postponement do not come under the above provision.

The local governments are to determine as to what days are holidays.

Children under twelve years of age may not be employed in factories.

The employment of children under fourteen years of age may not exceed the period of six hours a day.

Children who are obliged to attend the national school may only be employed in factories if they are present at least three hours a day in the national school, or in a school approved of by the educational inspectors, and where a regular course of education is conducted in a manner approved by the latter.

Young persons between the ages of fourteen and sixteen may not be employed in factories for more than ten hours a day.

Women may not be employed during the three weeks following their confinement.

The hours of labor for juveniles (children under twelve) may not begin before 5.30 a. m. nor continue after 8.30 p. m. Regular intervals must occur between the hours of labor on every working day. These rests must be of half an hour's duration for children and of an hour's for young persons between the ages of fourteen and sixteen, at midday, and of at least another half hour both morning and afternoon.

During the "rests" the juvenile work-people may not be employed at all in the work of the factory, and may only remain in the working rooms if those portions of the machinery or business in which juveniles are employed are completely stopped during the period of the rest.

On Sundays and holidays the juvenile working people may not be employed during the hours appointed by the regular clergyman for instruction in catechism, confirmation, confession, or communion.

The employment of a child in a factory is not permitted unless a "work-card" has been first sent in to the employer. A "work-book" is not necessary in addition to this. Work-cards are issued free of cost and stamp by the local police authorities, on the request or with the permission of the father or guardian; should the father's statement not be obtainable, the communal authorities may supplement his consent. They must state the name, day and year of birth, as well as the religion of the child, the name, occupation, and last residence of the father or guardian, and, in addition, the steps taken to comply with the legal educational requirements.

The employer must keep the work-card, produce it at any moment on an official demand, and at the completion of the term of agreement return it to the father or guardian. If the father's abode cannot be discovered, the work-card must be returned to the mother or nearest relations.

^a Law respecting trades regulations, July 17, 1878.

When juvenile work-people are to be employed in a factory, the employer must inform the local police authorities in writing before the commencement of their term of employment.

In the announcement of the factory, the week days on which they are to be employed, the beginning and end of the hours of work, and the rests, as well as the nature of the work, must be given. No change in the above may be made, except postponements, consequent upon the replacement of workmen in individual branches of the work before the necessary further notice has been given to the authorities.

The employer must take care that in every factory in which juvenile work-people are employed a list must be hung in a conspicuous place in the rooms they are working in, containing the names of the juvenile work-people, as well as the days on which they are employed, the hours of commencement and termination, and the rests. He must also provide that a table be hung up in these rooms containing an extract, in the form determined on by the central authorities, and clearly written, of the regulations relative to the employment of juvenile work-people.

Should any natural occurrence or accident interrupt the regular work of the factory, exceptions to the limitations prescribed may be admitted by the administrative authorities during a period of four weeks, and by the chancellor for a still longer time. In important cases of this nature, and for the prevention of accidents, the local police authorities can also permit such exceptions, but at the utmost for not more than fourteen days.

If the nature of the work or consideration for the work-people in separate factories makes it appear desirable that the working hours for juveniles should be settled otherwise than in the manner prescribed above, a further regulation relative to the "rests" may be allowed on request by the administrative authorities, and in other respects by the imperial chancellor. In such cases, however, juveniles must not be employed for longer than six hours, unless "rests" of at least an hour in all are allowed between the working hours.

Orders issued in accordance with the above conditions must be made in writing.

The employment of juveniles or women in particular branches of manufacture which are attended with danger to the health or morals may be altogether forbidden by decision of the bundesrath or made dependent on certain conditions. Night-work, especially for women, may be forbidden in certain branches of manufacture.

Exceptions to the restrictions prescribed as to children can also be admitted by decision of the bundesrath as regards spinning-mills, factories worked with uninterrupted furnaces, or which, from the nature of the work, have a regular course of day and night labor, and also as to those whose working does not permit of a division into regular shifts of equal duration, or whose nature limits them to certain seasons of the year. In such cases, however, the working hours for children must not exceed 36 hours a week, and for young persons 60; in spinning-mills, 66.

The steps taken in accordance with the decision of the bundesrath must be laid before the reichstag at its next session, and are to put out of force should the reichstag so desire.

Special officials, inspectors, named by the governments, either alone or in addition to the ordinary police authorities, are charged with the supervision of the carrying out of these conditions. In the execution of this supervision they have the same official rights as the local police authorities, especially that of inspecting the factory at any time. They are bound, except as to giving notice of illegalities, to keep secret any knowledge which they may obtain officially connected with the business or working of the factories under their supervision.

Matters of competency between these officials and the ordinary police authorities are left to the several states of the union to be determined constitutionally.

The said officials must send in yearly reports of their official proceedings. These reports, or extracts from them, must be laid before the bundesrath and the reichstag.

Districts in which no factories, or factories only to a limited extent, exist may, on the petition of the government of the country, be excepted by the decision of the bundesrath from the appointment of such special officials.

The employers must allow the inspections, in accordance with the provisions of law, of factories to take place at any hour when they are at work, even in the night.

A brief summary of the factory laws of the different states will indicate to what extent the principles of English factory legislation have been adopted in America. The states named are the only ones in which factory laws exist.

MAINE.—No child can be employed or suffered to work in a cotton or woollen manufactory without having attended a public or private school, if under the age of twelve years, four months; if over twelve and under fifteen years of age, three months of the twelve next preceding such employment each year. A teacher's sworn certificate of attendance, filed with the employer, constitutes the proof of schooling. A fine of \$100 is imposed for a violation on the part of the employer of the provision of the law.

No person under the age of sixteen years can be employed by any corporation more than ten hours of a day. The penalty for violating this provision is \$100.

Factories more than two stories in height, where workmen are employed above the first story, must be provided with outside fire-escapes satisfactory to municipal officers. (See chap. 48, Revised Statutes; chap. 221, acts of 1880; chap. 49, acts of 1881.)

NEW HAMPSHIRE.—No child under fifteen years of age shall be employed more than ten hours per day without written consent of parent or guardian. No person to be employed more than ten hours per day, except in pursuance of express contract requiring longer time. No child under ten to be employed by any manufacturing corporation. Children under sixteen not to be employed in factories unless they have attended school twelve weeks during preceding year, and no child under said age shall be employed (except in vacation time) who cannot write legibly and read fluently in the readers of third grade. No child under fourteen to be employed unless he has attended school six months, or the school of his district the whole time it was kept; and no child under twelve who has not attended the school of his district the whole time it was kept. (See General Statutes, chap. 187; chap. 21, acts of 1879; chaps. 42 and 56, acts of 1881.)

VERMONT.—Children under ten not to be employed at all; under fifteen, not more than ten hours per day; between ten and fifteen, not to be employed in mill or factory unless they have received three months' schooling the preceding year. (See General Statutes, chaps. 40 and 202.)

MASSACHUSETTS.—No child under ten years of age shall be employed in any manufactory, mechanical, or mercantile establishment in the commonwealth. No child under fourteen years of age shall be so employed, except during the vacations of the public schools, unless during the year preceding such employment he has for at least twenty weeks attended some public or private day school; nor shall such employment continue unless such child in each and every year attends school as aforesaid; and no child shall be so employed who does not present a certificate, made by or under the direction of the school committee, of his attendance at school as provided.

Employers shall require and keep on file a certificate of the age and place of birth of every child under sixteen years of age employed and the amount of his school attendance during the year next preceding such employment.

The penalty for employment of children contrary to these provisions is not less than \$20 nor more than \$50. Truant officers are obliged to visit establishments and inquire into the situation of the children employed, and may demand the names of children and the certificates of age and school attendance. Children under fourteen years of age who cannot read and write are not to be employed while public schools are in session; parents or guardians permitting such employment are subject to a fine of not less than \$20 nor more than \$50.

Employers requiring from employes, under penalty of forfeiture of wages earned, a notice of intention to leave shall be liable to like forfeiture if employe be discharged without similar notice.

Whoever by intimidation or force prevents or seeks to prevent a person from entering into or continuing in the employment of a person or corporation shall be punished by fine of not more than \$100.

Employers are not to contract with employes for exemption from liability for injuries resulting from employers' own negligence.

No minor under eighteen years of age and no woman shall be employed in laboring in any manufacturing establishment more than ten hours in any one day, except when it is necessary to make repairs to prevent the interruption of the ordinary running of the machinery, or when a different apportionment of the hours of labor is made for the sole purpose of making a shorter day's work for one day of the week; and in no case shall the hours of labor exceed sixty in a week. The penalty for a violation of this provision is not less than \$50 nor more than \$100.

The belting, shafting, gearing, and drums of all factories, when so placed as to be dangerous to persons employed therein while engaged in their ordinary duties, shall be as far as practicable securely guarded. No machinery, other than steam-engines, in a factory shall be cleaned while running, if objected to in writing by an inspector. All factories shall be well ventilated and kept clean. The openings of all hoistways, hatchways, elevators, and well-holes upon every floor of a factory or mercantile or public building shall be protected by good and sufficient trap-doors or self-closing hatches and safety-catches. All elevator cabs or cars shall be provided with some suitable device for securely holding the cabs in case of accident to the hoisting machinery.

All manufacturing establishments, three or more stories in height, in which forty or more persons are employed, unless supplied with a sufficient number of tower stairways, shall be provided with sufficient fire-escapes, properly constructed upon the outside thereof, and connected with the interior by doors or windows, with suitable landings at every story above the first, including the attic, if the same is occupied for workrooms. Such fire-escapes shall be kept in good repair and free from obstruction.

Every room above the second story in factories or workshops in which five or more operatives are employed shall be provided with more than one way of egress by stairways on the inside or outside of the building; and such stairways shall be, as nearly as may be practicable, at opposite ends of the room. Stairways on the outside of the building shall have suitable railed landings at each story above the first, and shall connect with each story of the building by doors or windows opening outwardly; and such doors, windows, and landings shall be kept at all times clear of obstruction. All main doors, both inside and outside, must open outwardly, and each story must be amply supplied with means for extinguishing fires.

Every building three or more stories in height, in whole or in part used for a tenement for more than four families or a lodging-house, shall be provided with a sufficient means of escape in case of fire. No explosive or

inflammable compound shall be used in any factory in such place or manner as to obstruct or render hazardous the egress of operatives in case of fire.

Persons violating these provisions as to buildings are liable to a fine of not less than \$50 nor more than \$100. Females employed in manufacturing establishments must be provided with seats and be permitted to use them when not engaged in the duties for which they are employed. This also applies to stores.

For the enforcement of all these provisions the governor appoints two or more members of the district police (a state force) to act as inspectors of factories and public buildings. They may enter all buildings used for public or manufacturing purposes, examine methods of protection from accident, means of escape from fire, and make investigations as to the employment of women and children. Fire-escapes, etc., are to be constructed under the approval of one of the inspectors. (See chaps. 48, 74, 103, 104, Public Statutes; and 150, 208, 266, acts of 1882.)

RHODE ISLAND.—No child under twelve years of age can be employed in any manufacturing establishment; no child under fifteen, unless he has attended school at least three months the preceding year; and no such child shall be employed for more than nine months in any year. No child between twelve and fifteen years of age shall be employed in any factory more than eleven hours in any day, nor before 5 o'clock in the morning, nor after half-past 7 in the evening. The violation of these provisions is punished by fine of \$20.

Ten hours' work in any one day constitutes a legal day's work, unless otherwise agreed by the parties to the contract for same. Town and city councils may pass ordinances requiring fire-escapes on factories in which workmen are employed above the second story. (See General Statutes, chap. 38.)

CONNECTICUT.—No child under fourteen shall be employed in any business, unless such child shall have attended some day-school for sixty days during preceding year, six weeks of such attendance to be consecutive. It is the duty of "school visitors" in every town once or more in each year to examine into the situation of children employed in manufacturing establishments, to see if provisions of law are complied with. Parents and guardians must send children to school the legal time; violation punishable by fine of \$5 for each week's neglect. Employer of child under fourteen must have a certificate of child's attendance at school according to law. No child under fifteen to be employed in factories more than ten hours per day or fifty-eight hours per week, under a penalty of \$50.

Each story above the second story of factories and workshops must be provided with more than one flight of stairs inside, or outside fire-escapes, satisfactory to selectmen or fire marshal of town.

Eight hours constitute a legal day's work, unless otherwise agreed upon. (See General Statutes, title 14, chap. 6; chap. 37, acts of 1880; chap. 80, acts of 1882.)

NEW YORK.—Children under fourteen are not to be employed during school hours unless they have attended school at least fourteen weeks during year preceding; the employer to have certificate of such school attendance. Eight hours constitute a legal day's work, except for farm and domestic labor. Overwork for extra compensation is permitted. (See chap. 385, laws of 1870; chap. 421, of 1874, and chap. 372, of 1876.)

NEW JERSEY.—No child under ten years of age shall be admitted to work in any factory; and no minor shall be holden or required to work more than ten hours on any day or sixty hours in any week; penalty for violation of latter provision is \$50. Ten hours per day constitute a legal day's work in all cotton, woolen, silk, paper, glass, and flax factories, and in manufactories of iron and brass. (See acts of 1851, chaps. 17 and 18.)

PENNSYLVANIA.—Eight hours constitute a legal day's work, in absence of special contract, except for farm labor and labor by the year, month, or week. Ten hours constitute a legal day's work in cotton, woolen, silk, paper, bagging, and flax factories. No minor under thirteen shall be employed in any such factory under penalty of \$50. No child between thirteen and sixteen years of age shall be employed more than nine months in any one year who shall not have attended school at least three consecutive months in the same year. No minor shall by any contract be employed in any of said factories for more than sixty hours per week, or an average of ten hours per day. Penalty for violation of this provision not to exceed \$50. Factories in which employes are at work in third or higher story must have permanent external fire-escapes, satisfactory to fire commissioners and fire marshal of district. (See acts of 1849, 1868, 1879.)

MARYLAND.—The law prohibits the employment of children under sixteen years of age in factories for more than ten hours per day under penalty not exceeding \$50.

OHIO.—No child under fourteen shall be employed in mills or mines during school hours unless he has received at least twelve weeks' schooling during the year preceding, and employers must have certificate to that effect; two weeks' attendance at a half-time or night school to be considered equivalent to one week at a day school. Whoever compels a woman, or a child under eighteen, or permits a child under fourteen to labor in a mechanical or manufacturing business more than ten hours per day shall be fined not less than \$5 nor more than \$50. (See Revised Statutes, sections 4023, 4024, 4029, 6986.)

THE HOMES OF FACTORY OPERATIVES.

The institution of the factory system changed the workshop-home of the domestic system to the home proper by transferring work to the factory. This change, as I have said in another part of this report, had its advantages and its disadvantages, but on the whole the advantages predominated. Whatever there was that was good in the old household plan of industry, so far as keeping the family together at all times and working under the care of the head, was, if the head was good, temporarily lost when the factory system took its place, in so far as the old workers entered the factory. It is also true that under the domestic system the head of the family, or the young man desiring to become such, had a motive to urge him to own the tools with which to work, but this motive actuated but few; the many were not moved by it. Now, while the few are deprived of such incentives, the many are furnished with elaborate tools with which to labor, and the homes are left free to be used as homes; so that the homes of the operatives under the new system have undergone a great change, and are still undergoing changes which are making the English significance of the word "home" a reality to the poorest.

It is perfectly true that in every large factory town one can find loathsome dwellings occupied by groups of loathsome persons called families. In the most enlightened factory towns, both in America and in Europe, it is easy to find dwellings occupied by factory operatives which are a disgrace, not only to the parties owning them, but to the municipality which permits them to exist or to be inhabited by human beings. It is true, too, that there are some families whose members are factory operatives who will not keep the best of tenements in decent order, and who, in spite of boards of health and of owners, persist in treating a house as if it were meant for swine.

All these things exist, and may be seen by any one who cares to take the pains to visit large factory towns. Yet, taking the operative population of such towns as a class, they are very comfortably housed, and about as well housed in one country as in another. The personal inspection of more than a thousand homes of factory operatives leads me to this conclusion. Perhaps a brief account of homes in different localities will best illustrate this chapter.

In Bradford, in Yorkshire, England, the seat of the woolen trade, a man earning \$7 per week, having a wife and one child, occupies a good house with three rooms, for which he pays \$1 25 per week; the house is comfortable, carpeted, and well furnished, with some mahogany furniture; meat is used once a day, and all the meals are ample and of fair quality. Another family, the husband a warp dresser, the wife a weaver, two children, occupy a house, consisting of living room and two bedrooms, for rent of \$1 36 per week, including gas. This family has a piano, good haircloth furniture, vases, pictures, and books; a good medium home, with a jolly English wife and a sober, industrious English husband; the husband on full time could earn 30s. per week, the wife 10s., and one of the little girls, as doffer, 2s. Among scores of these homes, taken at random, I found a few where the family earned as much as the others, but lived in two rooms usually, and these constituting a dark, smoky, and odorous den, for which 72 cents per week was paid as rent and very little was spent for bread, the bulk of all earnings going for beer and spirits. Such places in Bradford are rare, for the town is a model town, certainly so far as its neat, individual cottages are concerned.

I will remark here, what is true of all British factory houses, that, being floored with stone as a rule, if not carpeted, they present a cold and cheerless look to one not accustomed to them; and these stone floors are often quoted in this country to the disparagement of the English house. Homes of much higher grade are floored with stone or brick, being much cheaper than wood. The dimensions of the British house are much smaller than factory houses in America. The tenements of three rooms have much less space than tenements of the like number of rooms here. This is generally true of all European factory towns. But the houses of the operatives are as a rule separate houses, the tenement house being quite unknown, except where what is termed the "model workingmen's houses" are being tried. The boarding-house is not an institution for factory operatives.

At Saltaire, near Bradford, the homes of the work-people are very excellent, rents being from \$30 to \$100 per year for three- to five-room houses. The results of good treatment are easily discernible in this village. The facilities furnished for intellectual improvement rival those of any factory town in the world; and while the expenditures of Sir Titus Salt were made on such a lavish scale as to render his investments unprofitable, yet the principle incorporated in his work has told wonderfully upon the character of the people employed in Saltaire, and in no way is this more apparent than in the neat, tidy, and prettily furnished and adorned homes of the poorest paid operative in the works. These statements are true of the village of Queensbury, where John Foster & Son have works considered as the rival of Saltaire. The weavers at Queensbury earn from 15s. to 18s. per week on full time, and rents are 3s. 6d., or 84 cents, per week for three rooms. The operatives are healthy, and offer the best evidence of the results of the moral tone with which the firm tries to impress all connected with the work.

Some of the best houses in England are to be found at Copley Village, in Halifax, built by James Akroyd & Sons. These houses, which are shown in the plates, are very excellent. They rent, three rooms, for £10 per year, and the operatives are helped to acquire a freehold. The Akroyds believe in raising the moral condition of the people, and their efforts have met with success. They would not work under any other rule than that which recognizes the power of moral forces.

The Crossleys at Halifax have taken the same path. They employ 5,000 people, and take every pains to have them progress in all that makes good men and women. At Ashton-under-Lyne, in one of the worst streets of the town, I found a home of the old type, where a girl of fourteen was in charge of two babies; the mother dead, the father and sister at work in the factory; the family living in a house of four rooms, two above and two below, rent at 84 cents per week, the house poorly furnished and everything in bad condition; but few such places can be found in the town. Here Hugh Mason, esq., M. P., has brought the factory people as a rule up to the line of self-respect. The difference in the homes of those whose employers take an interest in the people and of those whose employers do not is very marked indeed. Rents run from 84 cents to \$1 12 per week, according to rooms, for ordinary houses, and the spinners (mule) earn from 35s. to 40s. per week.

The homes of Salford and Manchester do not equal those of the other places named, although they are very much improved as regards their condition a quarter of a century ago. The poorest houses rent for 84 cents per week, many of them, with four rooms, for \$1 08. In Oldham a good house of four rooms rents for 96 cents per week.

Blackburn, which has seen so much turmoil in the past, is passing out of its old condition, and the good results of factory inspection are to be seen. The dwellings of the operatives are of a lower grade than usual in Lancashire; rents are about the same, the poorest houses of three rooms renting for 96 cents per week, while some are as low as 68 cents, including water rates; but many of them are barren-looking houses inside, with but few of those adornments which accompany better moral and intellectual conditions. The houses of the English operative, as a rule, present a wide contrast to those occupied by their insular neighbors. This is true of the factory towns of England generally. At Bolton the houses are excellent, one of four rooms good, but of the lower grades, renting for 84 cents per week. These are usually well supplied with good furniture, pictures, and books. Bolton is the great center for fine cotton-spinning. The model establishment of Messrs. Tootal, Broadhurst & Lee has had a most excellent influence in the town, and shows what can be accomplished when the management recognizes the better operative as the result of a better moral condition. The wages of spinners in Bolton range from 15s. to 20s. per week.

The factories at Paisley are excellent evidences of the good influence which comes from proper interest in employes. The works of the Messrs. Clark and of the Messrs. Coates are moral establishments, and the influence of model works extends to the homes of the people employed, which are here very comfortable. Rents vary from 72 cents to \$2 per week, according to number of rooms.

In Glasgow no cellarages can now be found, and the factory city, which only a few years ago saw more drunkenness, comparatively, than any other, has greatly changed. Wide streets have been cut through the worst quarters, and the dwellers have been driven to the suburbs, where they have changed their cramped city abodes for clean and light homes. This process is constantly going on in Glasgow, and the factory operatives are reaping the benefit of the attempts to purify the town. Belfast, Ireland, a beautiful and prosperous town, is doing much to improve the dwellings of the linen-factory operatives. The cleanliness of the factories has an influence upon all connected with them, and this influence is far-reaching. The houses of the operatives in Belfast are very tidy, the windows, as a rule, being adorned with flowers in summer. Rents are from 48 to 60 cents per week for four rooms. There are houses with flats in Belfast. In the west and east of Scotland the operatives live very largely in flats; rents in Dundee and Dunfermline being, for two rooms, from \$15 to \$30 per year, and for three or four rooms from \$30 to \$50 per year.

Upon the continent the observer is happily disappointed, for he finds much better housing for the factory operatives than he could have reasonably expected. The flat prevails to a great extent. At Verviers, in Belgium, the men get from 3 to 4 francs per day wages and the women from 1 franc 75 centimes to 3 francs per day, and pay for rent for four rooms and small garden about \$60 per year; for two rooms on second floor, \$1 80 per month; for two rooms on third floor, 90 cents per month. These tenements, although small, are comfortable, fairly well furnished, and are adorned with lace curtains, window-gardens, etc. As a rule, the dwellings are very good, but the cottages are much better in every respect than the flat tenements. Many of the houses, with four rooms, cellar, and scullery, rent for \$3 per month. This class of houses is very excellent, having separate hallways and being well and neatly furnished.

Among the most substantial houses for workingmen will be found those of Herr Krupp, at Essen, in Rhenish Prussia. These houses compare well with the men employed in the celebrated steel-works at this place. Herr Krupp by his system of employment has the selection of the best mechanics in Europe. This system comprehends all the advantages to be found in model industrial establishments, including excellent tenements and gardens at low rents. A foreman, a gun-maker, earning \$45 per month, secures four rooms, a drying-place on the roof, a cellar and a garden for \$45 per year. A workman with wages at 75 cents per day pays \$37 per year for three large rooms, drying-place, cellar, and garden. These are fair tenements, in two- or three-story blocks, situated in colonies just outside the town. For \$100 per year one can obtain a most excellent tenement of seven large rooms, cellar, garden, etc. All the houses in the colonies are owned by Herr Krupp; in fact, he believes that he secures better results by owning everything, and by being able thereby to control the sanitary surroundings of the dwellings of his people. These colonies, each having its name, are laid out with parks, schools, churches, supply stores, etc. Here the

working people use a great deal of black bread, but this bread is very sweet and nutritious, and is often found on the tables of those above the operative class, the same as our graham bread is found upon the tables of the rich.

The housing of single men at Essen is on the barrack plan, and is far below the American corporation boarding-house style of housing our single operatives. In the hosiery town of Chemnitz, in Saxony, where men earn in the factories from \$2 50 to \$5 per week and the women from \$1 50 to \$2 50 per week, working twelve hours per day, very fair flats of three rooms and a drying-place can be secured on second or third floors for \$36 per year. These flats are in high buildings in the center of the town, and, looking at the outside and observing the curtained and gardened windows, a stranger would not take them for the abodes of the factory operatives; but the appearance of the operatives in the mills does not harmonize with the appearance of their dwellings, which are very excellent.

Mulhouse, in Alsace, has had the benefits to be derived from the efforts of active industrial societies, and the dwellings here, which are separate, show the care of the employers. The usual plan of the Mulhouse cottage is to erect four separate houses under one roof, upon a square, each fourth of the square constituting one dwelling. This is illustrated by the plates. The houses have gardens attached; and rents are low, as will be seen from the description of the plates. The Alsatian factory operatives constitute a class by themselves in many respects. They are very neat, the females wearing pretty dresses and having their hair nicely done up, and when they leave the mills they put on a tidy sack, while the men put on a coat, that they may look well upon the street. Bread and vegetables are the chief articles of food, meat not being used so much as in England.

Rouen and Amiens, France, are perhaps typical factory towns, though in all respects not model ones. In the former place the operatives live in all sections of the town, many in what is known as the "poor quarter", and it is well named. This locality contains the oldest houses in Rouen, and they are very poor indeed. By far the greater proportion of the operatives live in quite comfortable houses, some flats, some cottages, but there is not much attempt to improve them. The factories, in fact, are not as clean and tidy, free from dust, and well ventilated, as are those at Amiens, where the houses and the factories are very good; in fact, the poorest dwellings in Amiens are as good as the better ones in Rouen. The operatives of Amiens use good food, and their tables at tea time presented, with white bread and neat table furniture, an inviting appearance. The window-gardening of the operatives' houses adds much to their attractiveness, and gives a thrifty appearance to the humblest home.

In this brief notice of the homes of operatives I have intended to call attention to types only. It should be stated that the houses in Great Britain and on the continent are of stone or brick, as the locality may afford, and the neat wood cottage of America cannot be found.

The operatives constitute a study in themselves. They differ in appearance as much as in nationality. In the British factory they wear woolen clothes, and do not change them as they go upon the streets; but of a Saturday afternoon or evening they are found well dressed and usually well behaved. In the factories their woolen clothes give them an untidy appearance. In Belgium and Germany the blue linen blouse prevails; it looks clean, and is so, but it constitutes the street as well as the factory dress for the men, while the women wear loose, untidy clothes. In France, as stated, the female operatives take pride in their dress and hair, and in the mills they look as bright and as comely as do the bonny operatives in the thread-mills at Paisley, Scotland, perhaps the finest body of operatives in the world.

It is quite impossible to compare the homes of European factory operatives with those of the same class in America. The great mass of the former are, generally speaking, quite as well housed as the latter, so far as the quality of house is concerned; but, so far as quantity of room and excellence of living are concerned, the advantage is with the operatives of America. The European has, as a rule, the advantage of lower rents. It is also difficult to make a comparison, because systems differ. In American factory towns the corporation boarding-house was a necessity when the factory was assured, because the employes were largely single people from the farming towns. These boarding-houses offered and continue to offer good rooms and good and ample food. I had the pleasure a few years ago of taking a British manufacturer into one of these boarding-houses at dinner time, and he was extravagant in his praise of the table. It would be impossible to find in an operative's home in Europe a table half as well spread as that of a corporation boarding-house in New England.

The boarding-house led to the corporation tenement-house for families, and this, too, is quite unknown in Europe; it is oftener met with on the continent, where the higher classes take to flats, than in Great Britain; but it cannot be compared to the small, compact, individual houses of the British operatives.

In Europe, too, the operatives have been of one nationality, generation succeeding generation. The English operative's home is the type of the English workingman's order of being; so with the home of the French, the German, and the Belgian operatives respectively. In America we have not kept the operatives of one nationality long enough to develop a type. And yet when the operative of this country steps out of the boarding- or the tenement-house he steps into an individual home the equal of which cannot be found in the factory towns of the Old World. The plates presented with this chapter clearly illustrate this fact. The cottage of the American factory operative, when he sees fit to occupy one, is superior to the cottage of the workingman of any other country. It is most gratifying to know that the individual homes are not only increasing in number very rapidly in this country, but that they are increasing in influence. In Lowell, Lawrence, Fall River, Pawtucket, Cohoes, and in fact in all

the leading factory towns, this is the course of progress. And the more rapidly the increase takes place the more rapidly will the filthy, crowded places called homes, which some of our operatives insist upon inhabiting, disappear.

In this country the individual house usually has a few thousand feet of land about it, and the operative is stimulated by the prospect of proprietorship to save his money and become the owner of the estate. Our land laws offer no obstacle, and when the corporation gives encouragement the success of the operative in becoming the owner is easily assured. If he will let beer alone and he and his family live cleanly, the operative can thrive; if he says he cannot, let him see that others can, and learn that the fault is his own, when his employer is willing to encourage by easy terms his way to ownership. In too many instances no inducements are offered by the corporation for the operatives to better their condition in these respects. In such cases there is excellent opportunity for building societies, as at Mulhouse, Halifax (England), Philadelphia, and many other places. There never was a time in the United States when so much was being done to house the operatives as at present, and it is to aid this work everywhere that I have dwelt to such length upon the homes of the operatives and given so many details of such homes in other lands. That the model dwellings of different countries may be studied and compared, I have had a series of plates prepared, which truthfully and accurately represent the best houses occupied by operatives in England, Belgium, Germany, France, and the United States. With two exceptions I have examined the houses represented, and can testify to the faithfulness with which the plans have been drawn.

PLATE I. *Operatives' houses built by James Akroyd & Son, at Akroydon, near Halifax, England.*—The plate shows a block of ten houses, each independent as to entrances, yard accommodations, etc. The houses are built of rubble masonry, and the yards contain water-closets and receptacles for rubbish. Two arrangements of tenements are contained in this block, as will be seen from the plan. The minimum accommodation afforded is three rooms per tenement, including the chambers on the second floor. The plate also shows plans of operatives' cottages at Copley Village, near Halifax, England.

PLATE II. *Workingmen's houses of M. Menier, at Noisiel, Seine-et-Marne, France.*—The cost of a house is \$855 60. The houses are not sold. The walls are of brick, with apparent joints. The roof-covering is of tiles. The chimney necks or caps are of brick, and are covered with a piece of earthenware, which receives the chimney-pots. The fences on the streets are 5 feet 2 inches high. They are composed of a little brick wall, $4\frac{1}{2}$ inches thick and 2 feet 7 inches high, supporting a trellis of the same height. Each water-closet has its cask refilled, when there is need for it, at the cost of the works. Each house is inhabited by a single family. The garden is used for raising vegetables. The cellars are ventilated by tubes placed in the middle or partition walls. The water from the kitchen runs into dirt-holes or heaps in the rear of the houses. There is no sewer in the middle of the street. The streets are shaded by trees placed on the sidewalk. The houses are perfectly ventilated. Water is obtained at the water-posts.

PLATE III. *Workingmen's houses at Verviers, Belgium.*—The selling-price of a house is \$744, payable part down and the rest annually. The roofs are covered with Holland tiles. The gutters are of zinc. The window-sills and the stairways are of stone. The society erecting these houses furnishes to workmen a house consisting of four rooms and a kitchen at the price usually charged for the rent of two rooms. The price of the houses has been raised, to prevent speculators from buying them in the name of workingmen, which has been too often done, and also to prevent subletting. The heating is done by stoves. Two chimney-pipes go up in channels in one of the walls. The floors of the third story are of pine; the interior stairway is of beech. The ceiling or floor above the cellar is plastered. The kitchen is paved with tile or brick. The refuse is employed in the garden. The principal room can serve for a shop or a workshop. Two styles of houses are shown, but this general description applies to both.

PLATE IV. *Workingmen's houses in Mulhouse.*—The cost of a house is \$433 65; the price of 192 square yards of land is \$29 76; total, \$463 41. Price of a group of four, built in 1864, \$1,734 63. The yearly rent is \$34 88. The tenant becomes owner at the end of fifteen years by paying \$1 12 more a month. The houses are coated with mortar made of hydraulic stone and river sand. The stone is colored white, yellow, or gray. The sills of the windows are of stone, as well as the thresholds of the doors. The lintel-bars are of round iron. The houses are separated by lattices made of oak laths. The framing of the windows is of stone without projections. The area covered by the house is 38.69 square yards. The chimney-shaft is of brick. The roof is covered with tiles. The gutter is of tin, with three coats of paint. A ventilating-pipe runs from the drain to the roof. The stairway is lighted by means of a glazed skylight upon the roof. In Alsace the workingmen generally prefer to have the privies in the garden. The inside of the drains is covered with a coating of cement; the bottom is of concrete. The people generally use the house refuse with the remains of vegetables and straw for their gardens. The partitions of the privies are of wood, and they are covered with tiles. The refuse water of housekeeping runs into the city sewer. Water is furnished by pumps set over well-holes dug 26 feet deep, and disposed along the sidewalks. The 144 square yards of garden supply vegetables, worth, at market prices, \$11 16 yearly. The smoke-pipe, of sheet-iron, leaving the stove in the dining-room, connects with a pipe of double-burnt earthenware, to avoid condensation in going through the kitchen.

PLATE V. *Workingmen's houses in Mulhouse.*—The price of a group of houses is \$1,971 60. The area covered by a house is 52.76 square yards; the total area covered by a house and garden is 180 square yards. The

monthly rent is \$2 60. The lintels and window-sills are of stone. On all the stone lintels there are delivery-pipes. The walls are covered with a speckled rough coating in hydraulic stone and mortar. The rain-water, with that for the kitchen, runs away through paved trenches near the sidewalks until it reaches a sewer. The houses are embanked outside. By paying \$3 72 a month, instead of \$2 60, the tenant becomes the owner at the end of fifteen years.

PLATE VI. *Workingmen's houses of Mr. Krupp, colony of the Three Linden Trees.*—The price of a group of four houses is \$4,185. The price for one house, including the land, is \$1,046 25. The annual rent of two rooms with a cellar varies from \$20 93 to \$25 11 yearly in a house with stories. The rent of a house in this group is from \$37 20 to \$41 85 a year. The refuse matter is taken by the peasants of the surrounding country, who use it as compost. The roof is covered with tiles. The exterior walls are of rubble stone or ashler; the interior partitions are of wood. The window-sills and the stairways are of stone. In 1876 Mr. Krupp, to accommodate his workmen, constructed 3,277 tenements, which are occupied by 16,700 persons. On account of the rapid development of his works he has been obliged to build houses with stories. They are obliged to give every family a separate entrance. This plate also shows a group of two houses arranged for four families. In this group the annual rent of a tenement composed of four rooms is \$41 85. The employés of Mr. Krupp pay their rent once in three months. The rent of the workingmen is regulated by reserves made from their pay, which is carried into effect every fifteen days. The rent of widows is paid by the benefit societies. The inspectors prevent the workingmen from crowding themselves in the tenements. They expel workingmen who live in too small tenements.

PLATE VII.—This illustrates other houses erected by Mr. Krupp at Essen, in which the framework shows upon the outside.

PLATES VIII, IX, X, XI.—The plates represent wooden cottages built by the Willimantic Linen Company at Willimantic, Connecticut. With each cottage there is quite a garden of several thousand feet of land. The rent is from \$60 to \$125 per year, according to size. These houses are located in such a way as to exhibit variety of styles; that is, two of like architecture are never placed side by side. The company has about 40 of these houses at the present time, occupied by operatives and overseers.

PLATES XII, XIII.—These represent houses of the Ludlow Manufacturing Company, at Ludlow, Massachusetts. They have erected thirty of these, which they sell to overseers and operatives or rent to them when they show a disposition to take good care of the tenements. But in the tenement-houses of the corporation recently erected the rooms are fully as large as shown in the cottages, and each tenement has a separate front and rear entrance and a cellar. The cottages shown on the plates have from one-quarter to one-half an acre of land each, and they rent as follows: Cottages shown as Fig. 1 of each plate rent for \$8 per month; those shown as Figs. 2 and 3 of Plate XII and Fig. 3 of Plate XIII, at \$7 per month; that shown as Fig. 2 of Plate XIII, at \$6 per month. In case these cottages are rented to parties not operatives the rents are higher.

Very many more cottages might be shown, which have been built by concerns whose managers feel that they owe something beside wages to the labor which they congregate in the factory. The efforts to secure good homes for their operatives made by the Cheney Brothers, at South Manchester, Connecticut; the Fairbanks Company, at Saint Johnsbury, Vermont; the Hazards, at Peace Dale, Rhode Island, and by hundreds of firms and establishments might be described; but the instances given and the plans shown will illustrate the spirit which is finding emphatic expression all over our country wherever the factory system prevails and men have seen the necessity of improving the generation which will soon occupy our factories and workshops. If the typical houses shown are reproduced by building societies and manufacturing corporations the very best results will follow.

THE FUTURE OF THE FACTORY SYSTEM.

Whether the factory system can be made the ideal system of industry depends upon the men in charge of great industrial enterprises. Whether it can be made the ideal system or not, it will remain, for the large system of production cannot fall back to the small method. Industrial copartnership, or co-operation even, must find a foothold with the factory system, not without it.

The fact that the factory has stimulated the growth of such magnificent model industrial establishments as the Familistère at Guise or the printing works at Tours, France, is sufficient to convince one not too sordidly disposed that the factory is capable of producing the very highest results in raising the lowly. When we consider what the first century of the system has accomplished—and really its work has been done in half a century—we may well speculate as to the future of so powerful an element in our social and industrial conditions.

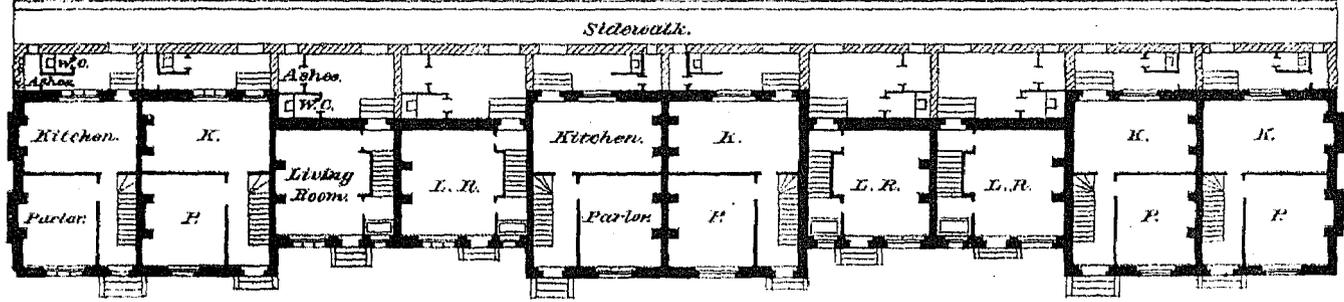
It is obvious, from all the facts presented, that the factory system has not affected society so badly as has been generally believed; and if in its introduction it has brought evils to light, it has at the same time not only sought to remove them, but has done much to remove others. The unheard-of power it has given labor, the wealth that has sprung from it, are not the sole property of any class or body of men. They constitute a kind of common fund, which, though unequally divided, "as are all the gifts of nature to finite understandings," ought "at least to satisfy the material and many of the moral wants of society". (a) The weal or the woe of the operative population

PLATE I

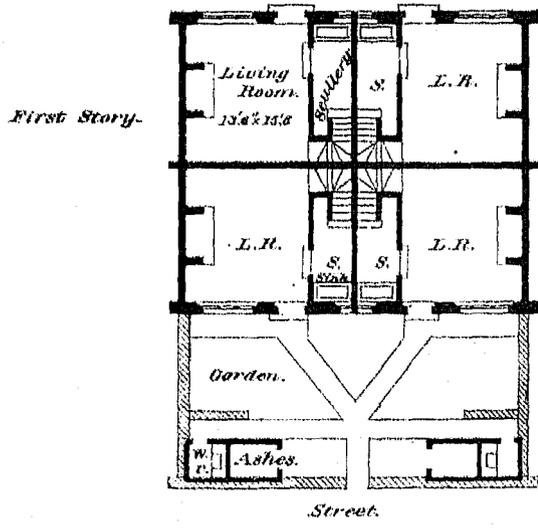


Elevation.

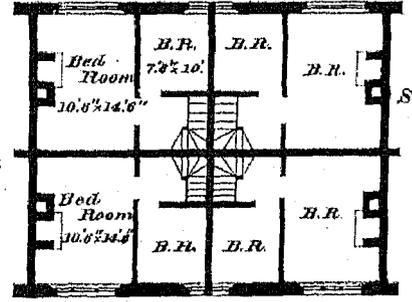
HOUSES AT AKROYDON, NEAR HALIFAX, ENGLAND.



Plan of Ground Floor.



First Story.

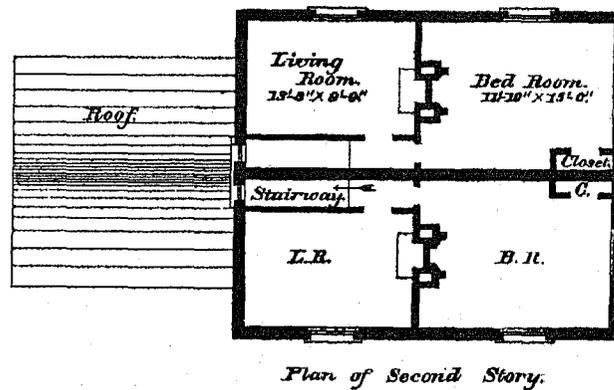
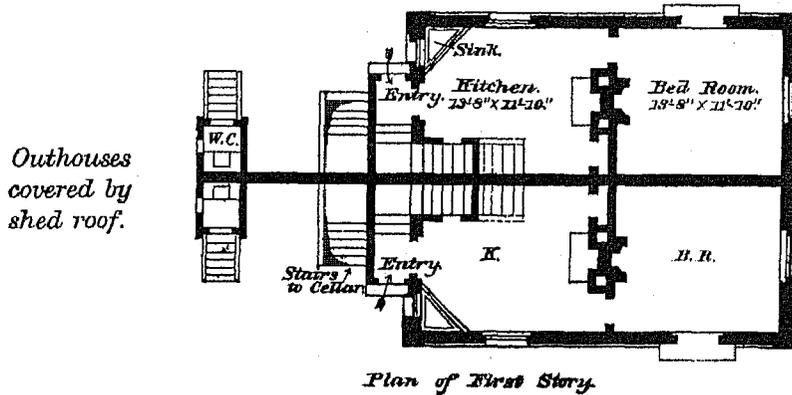
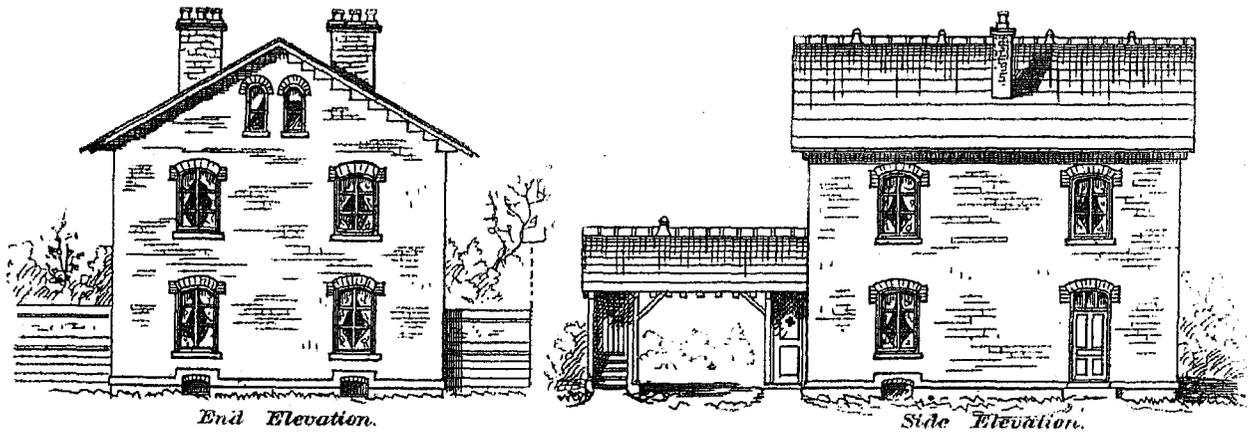


Second Story.

Showing Two Houses on each side of Block.

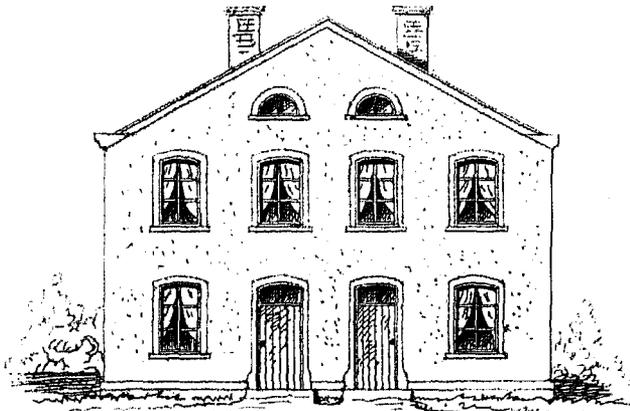
HOUSES AT COPLEY, NEAR HALIFAX, ENGLAND.

PLATE II.

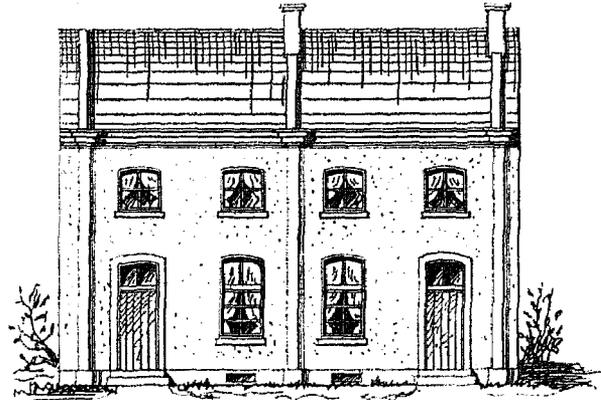


GROUP OF TWO SEMI-DETACHED HOUSES
AT NOISIEL, (Seine-et-Marne), FRANCE.

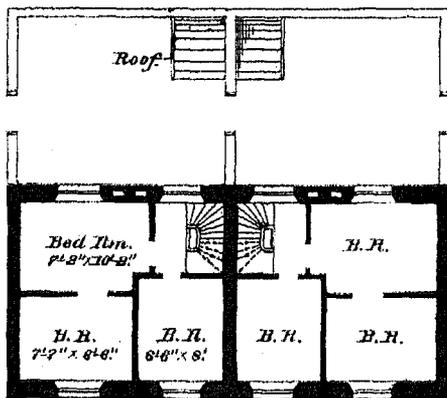
PLATE III.



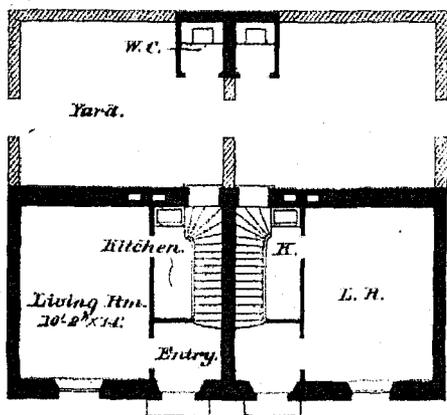
Elevation.



Elevation.

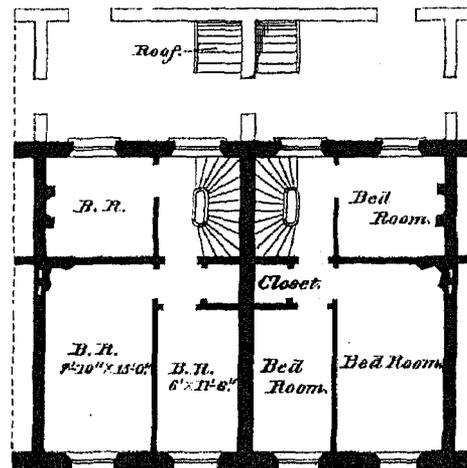


Second Story.

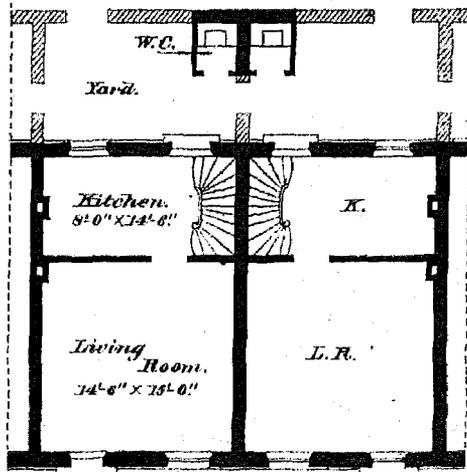


First Story.

Two semi-detached houses.



Second Story.

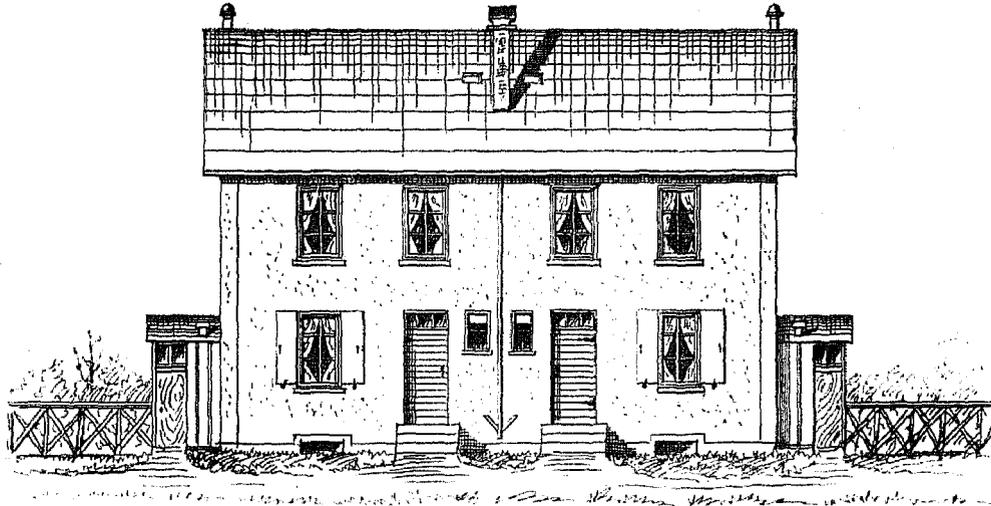


First Story.

Two houses of a group contained in a block.

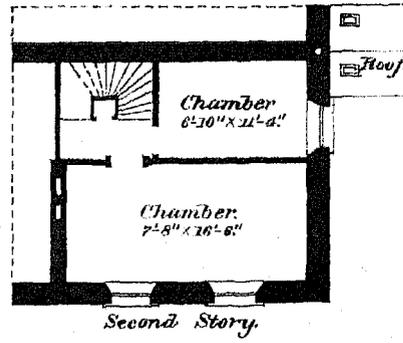
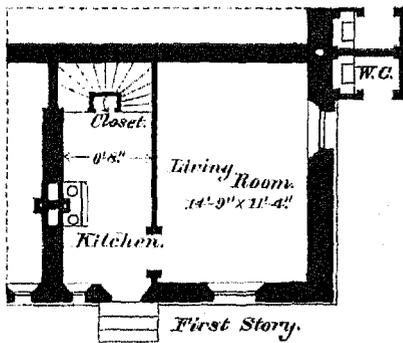
WORKMEN'S HOUSES AT VERVIERS.

PLATE IV.

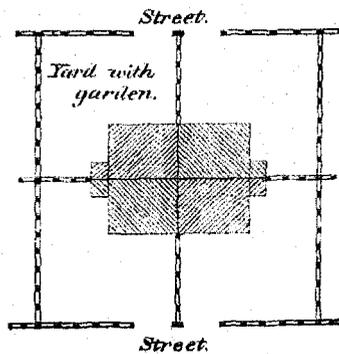


Elevation.

HOUSES AT MULHOUSE.

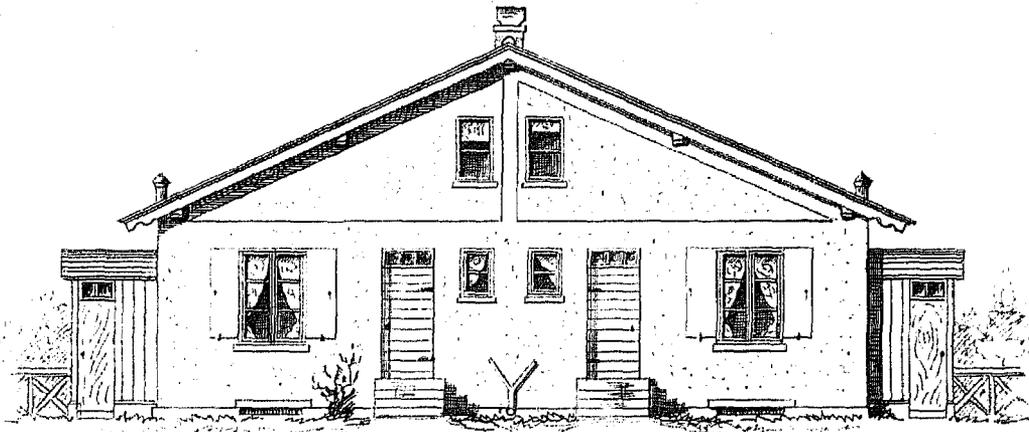


Block plan, showing arrangement of block upon the lot.

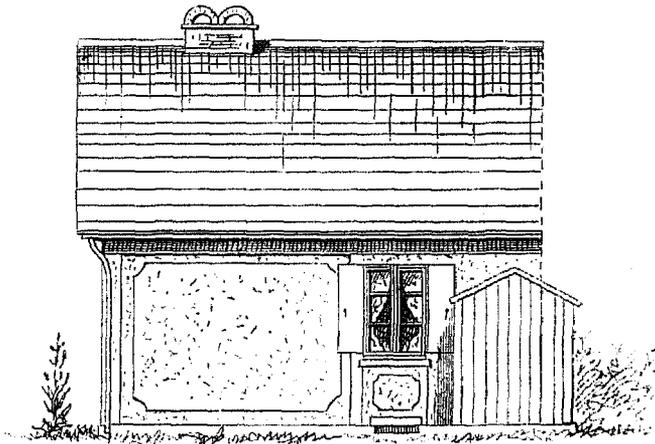


Each block contains four houses.

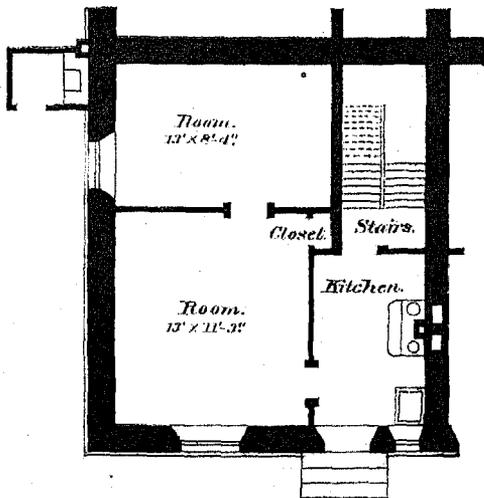
PLATE V.



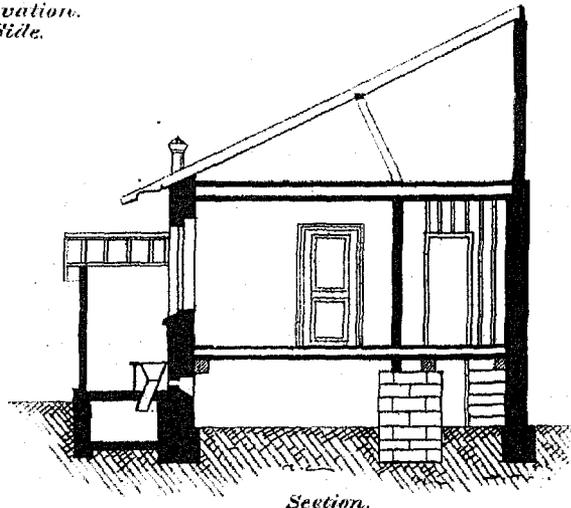
*Elevation.
Front.*



*Elevation.
Side.*



*Plan.
One-fourth of block.*

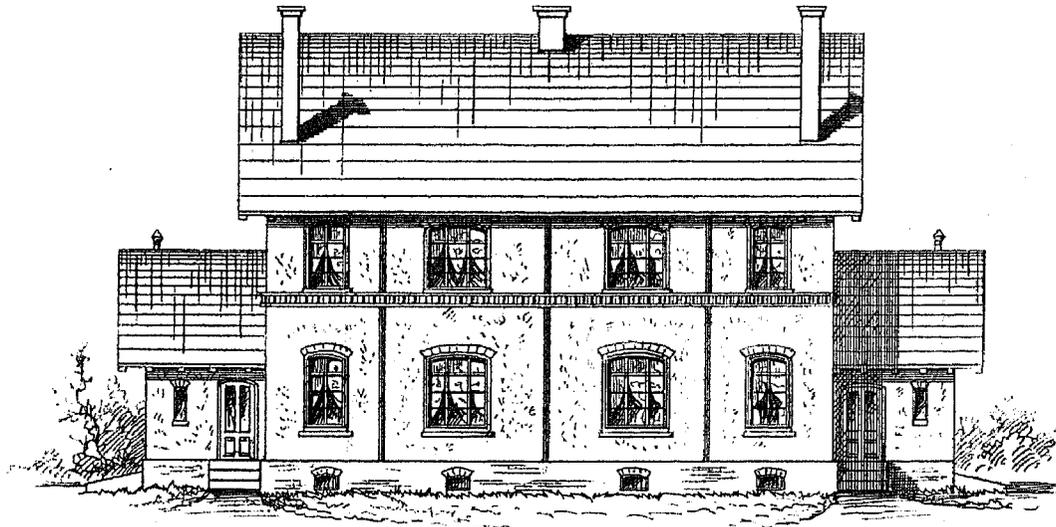


Section.

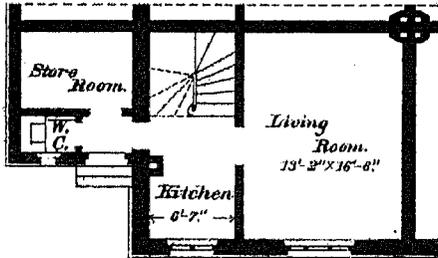
HOUSES AT MULHOUSE.

(Four houses in each block).

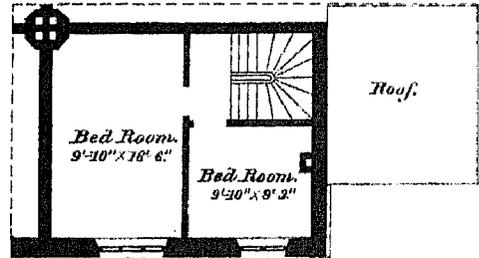
PLATE VI.



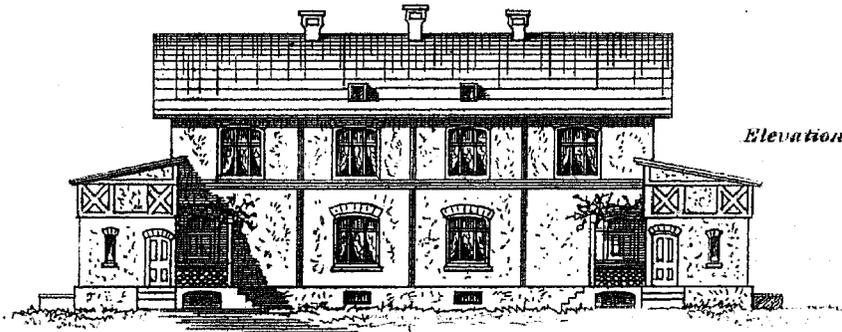
Elevation.



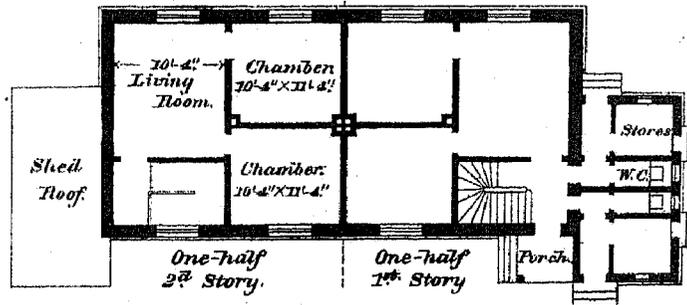
First Story.



Second Story.



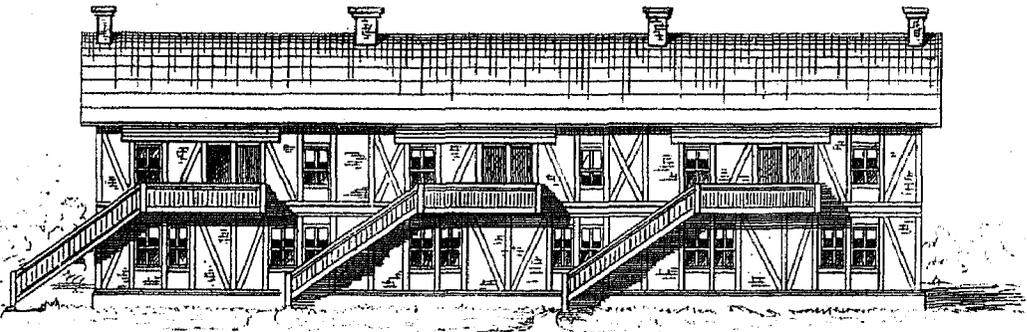
Elevation.



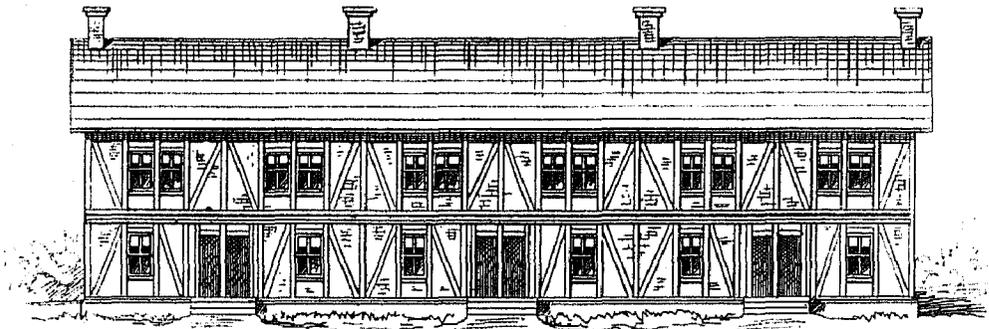
HOUSES AT THE WORKS OF F. KRUPP.

(Each tenement forms one-fourth of the block).

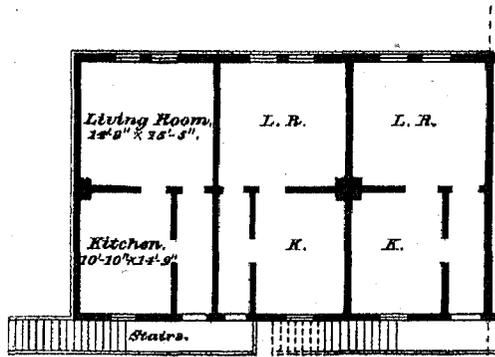
PLATE VII.



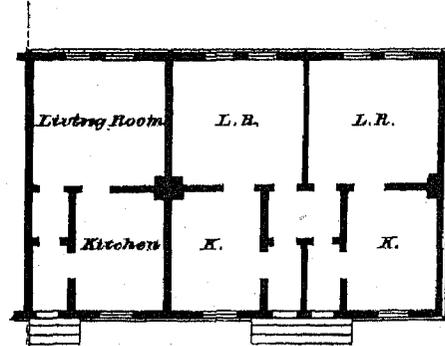
Front Elevation.



Rear Elevation.



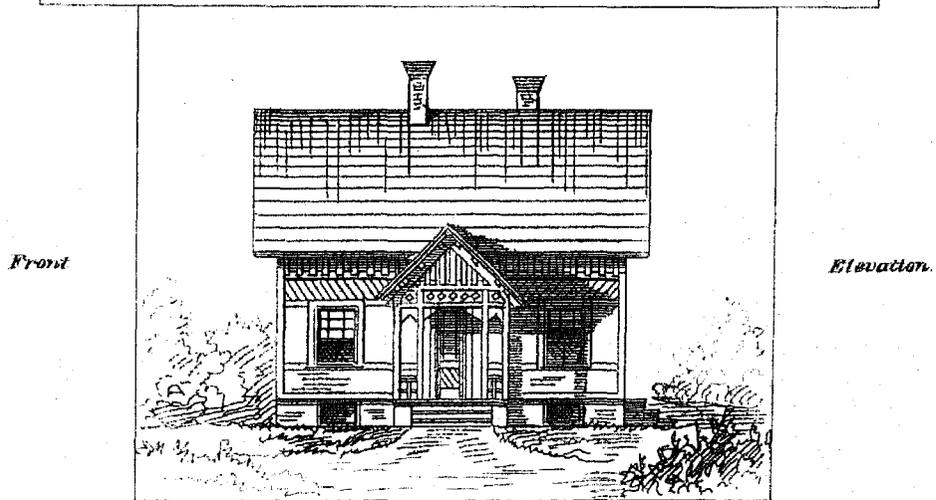
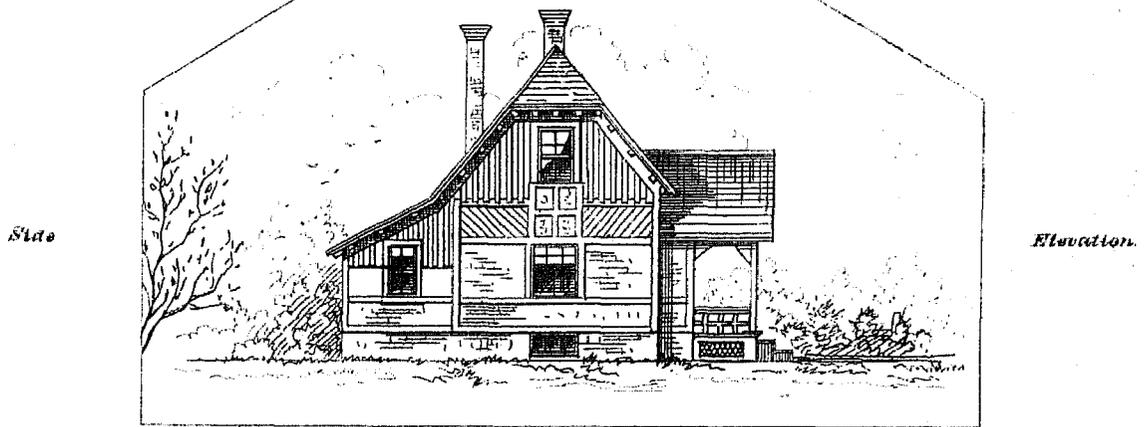
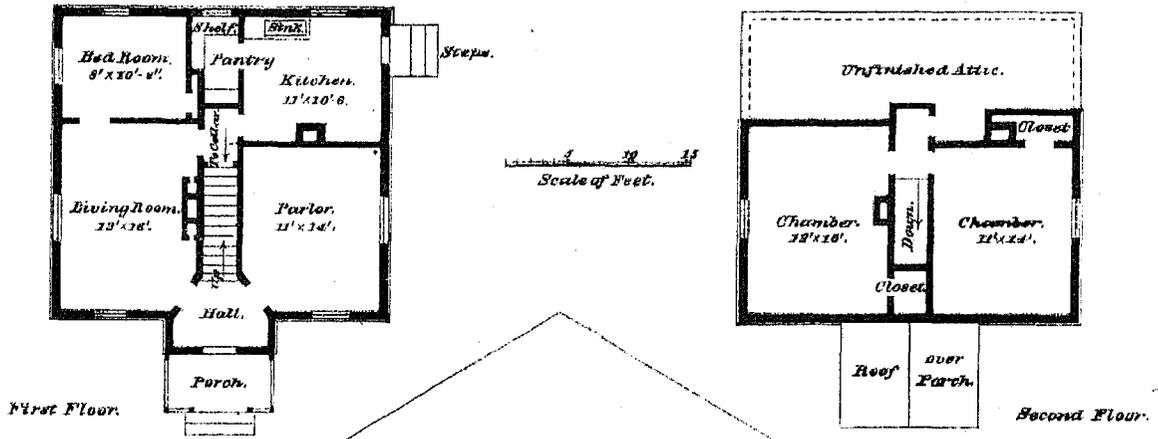
One-half Plan of Second Story.



One-half Plan of First Story.

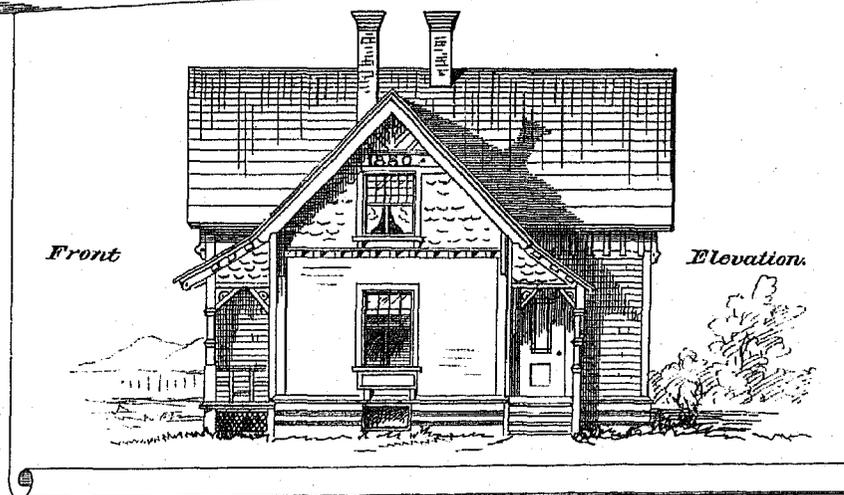
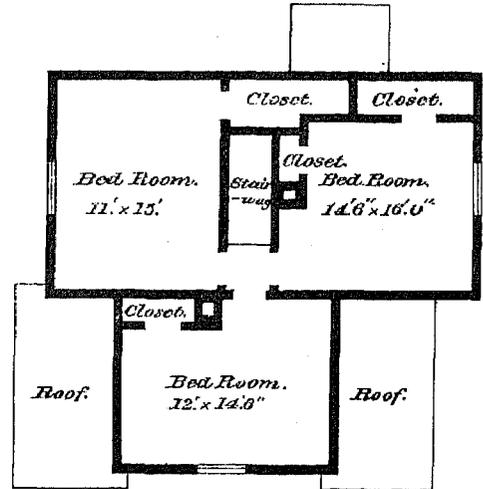
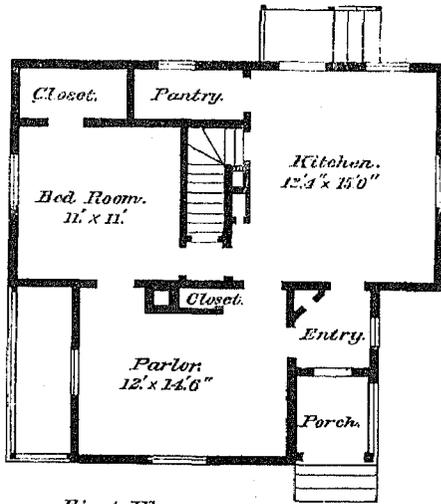
HOUSES AT THE WORKS OF F. KRUPP.

PLATE VIII.



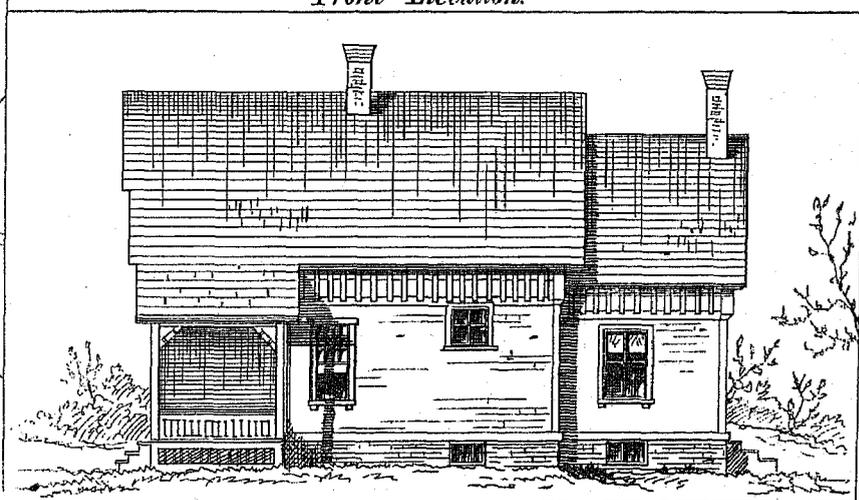
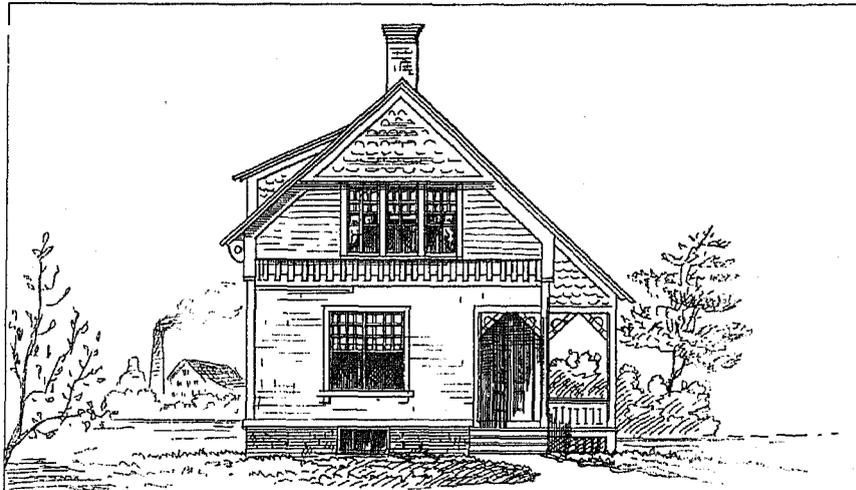
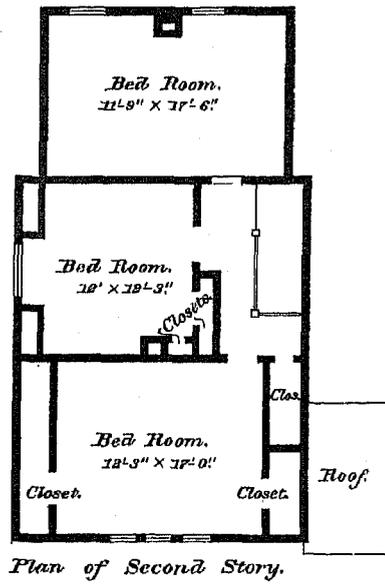
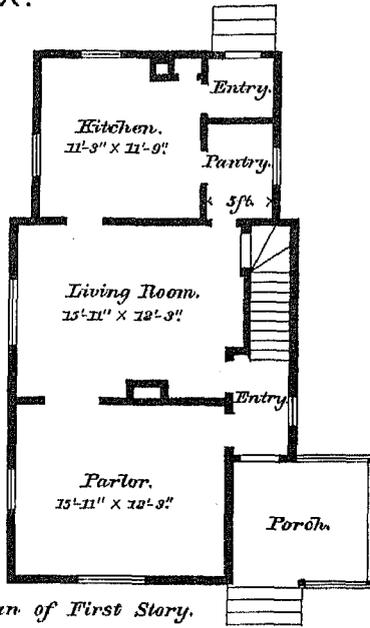
OPERATIVES' HOUSES ERECTED BY THE WILLIMANTIC LINEN COMPANY,
 WILLIMANTIC, CONNECTICUT.

PLATE IX.



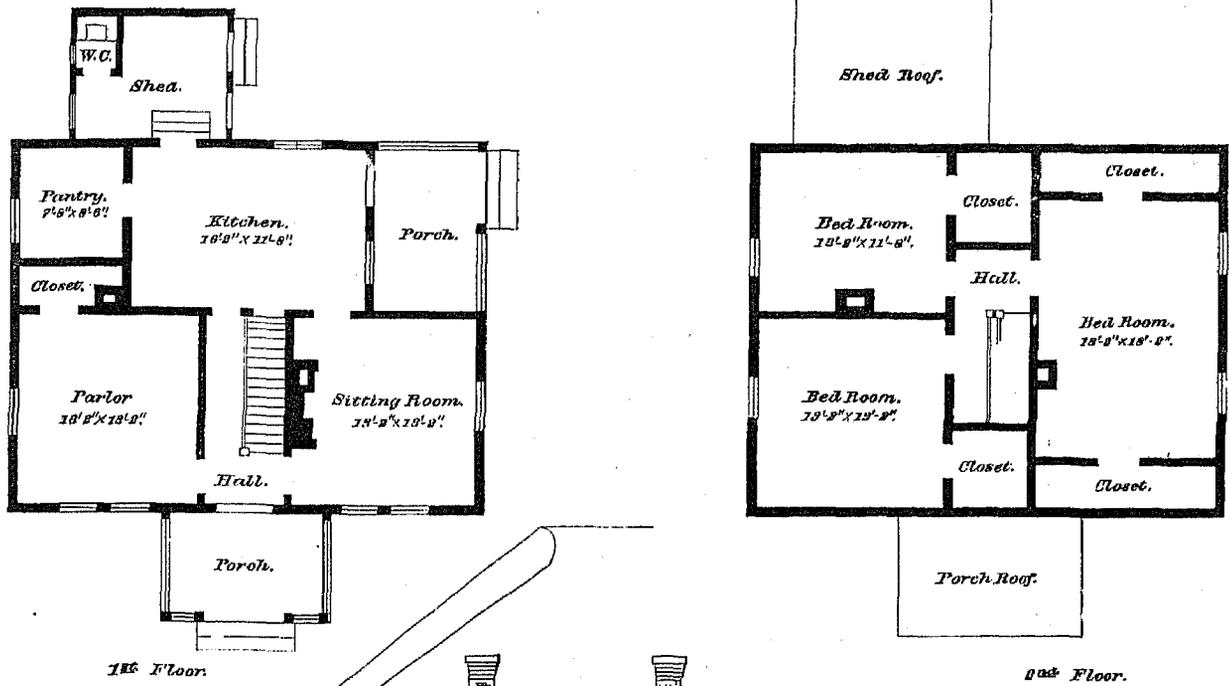
COTTAGES FOR THE OPERATIVES OF THE WILLIMANTIC LINEN COMPANY,
WILLIMANTIC, CONNECTICUT.

PLATE X.



OPERATIVES' COTTAGES AT WILLIMANTIC, CONNECTICUT.
ERECTED BY THE WILLIMANTIC LINEN COMPANY.

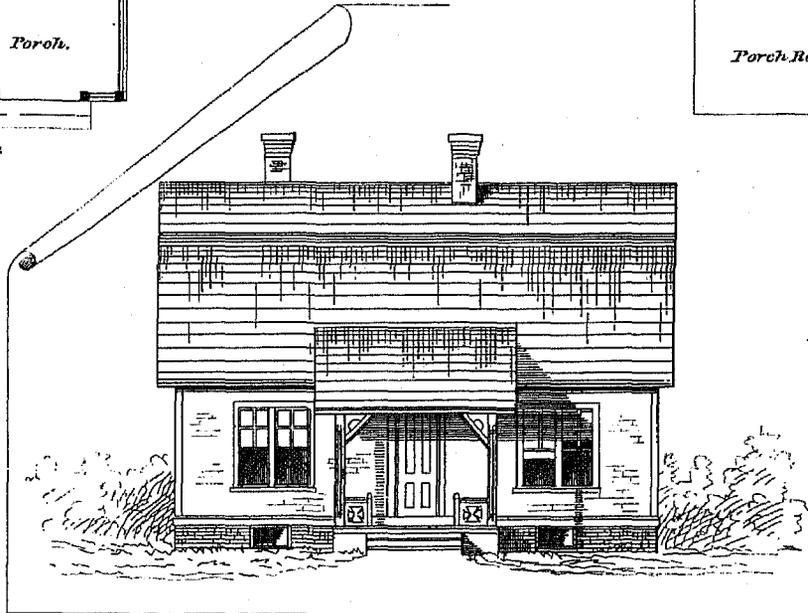
PLATE XI.



1st Floor.

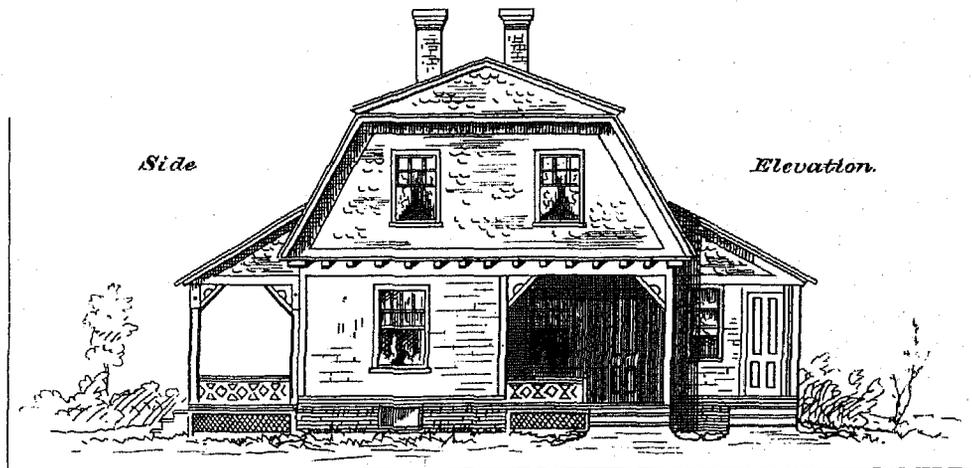
2nd Floor.

Front



Elevation.

Side



Elevation.

OPERATIVES' HOUSES ERECTED BY THE WILLIMANTIC LINEN COMPANY,
WILLIMANTIC, CONNECTICUT.



FIG. 1. PERSPECTIVE VIEW.

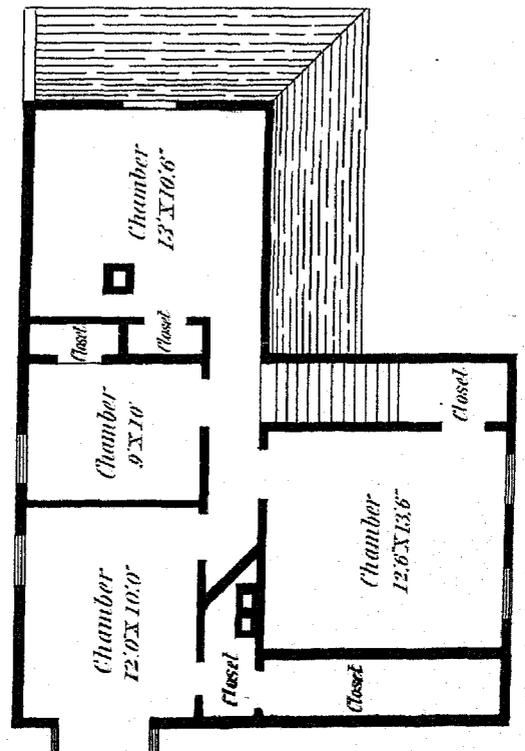
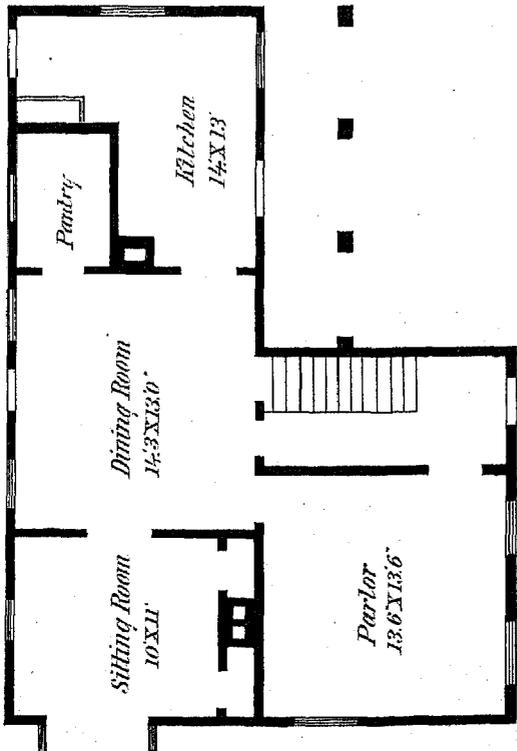




FIG 2. PERSPECTIVE VIEW.

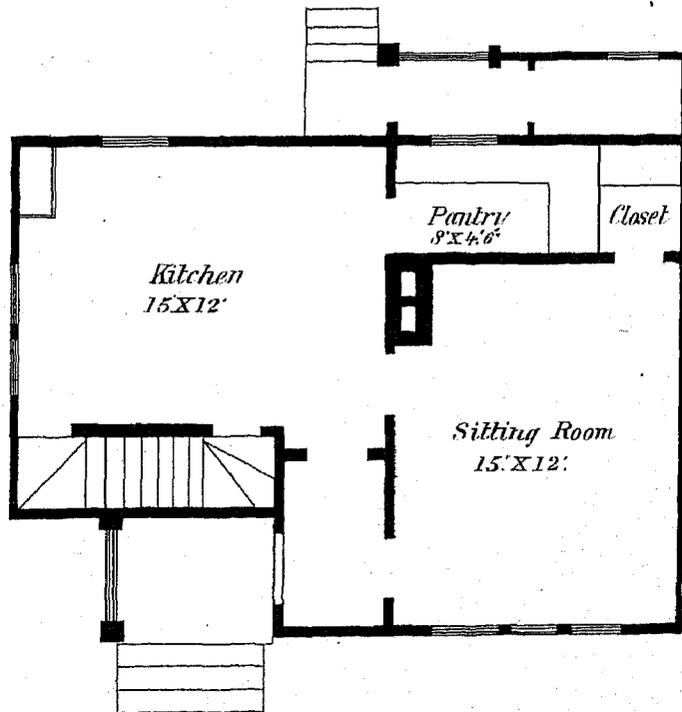
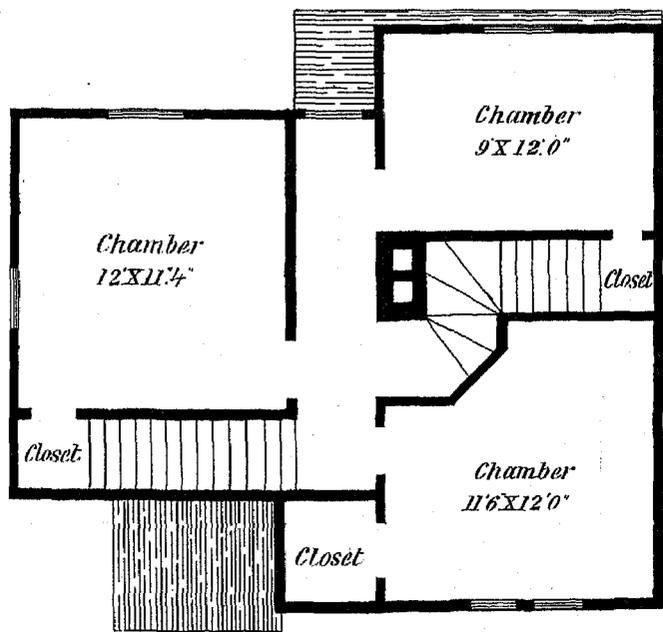
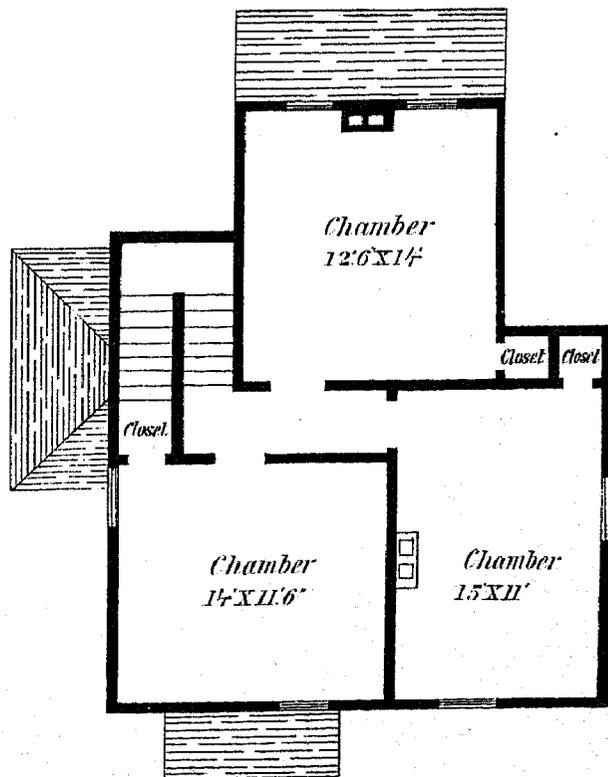
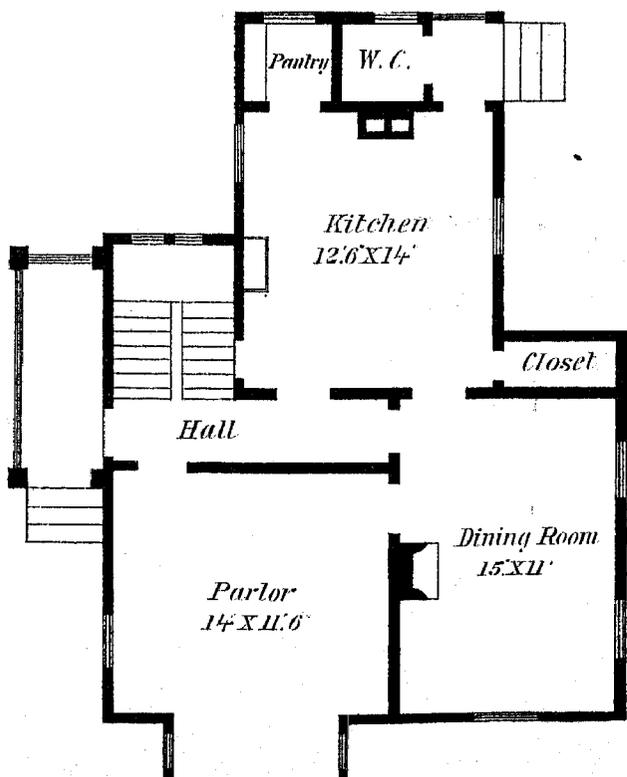




FIG. 3. PERSPECTIVE VIEW.



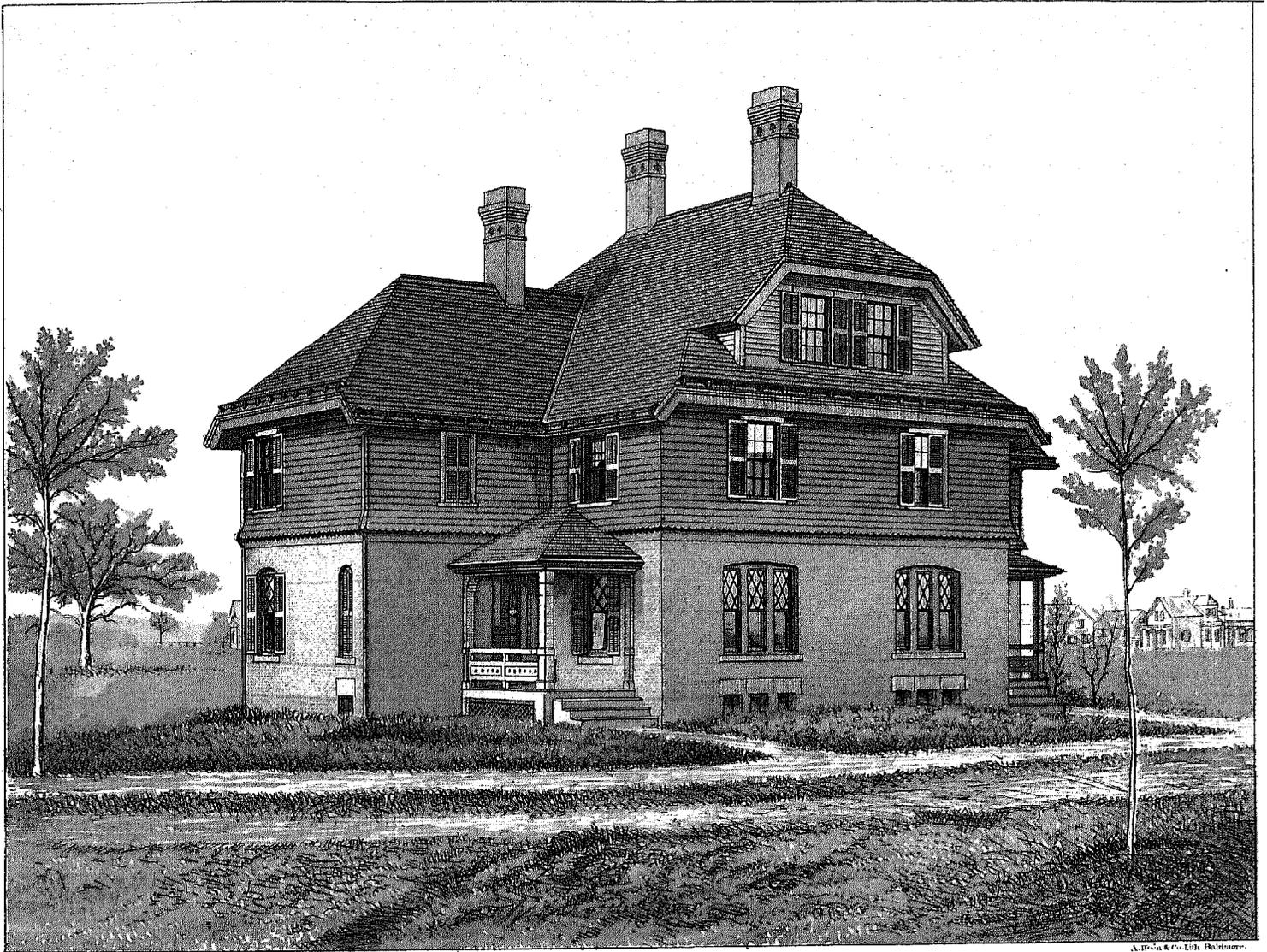
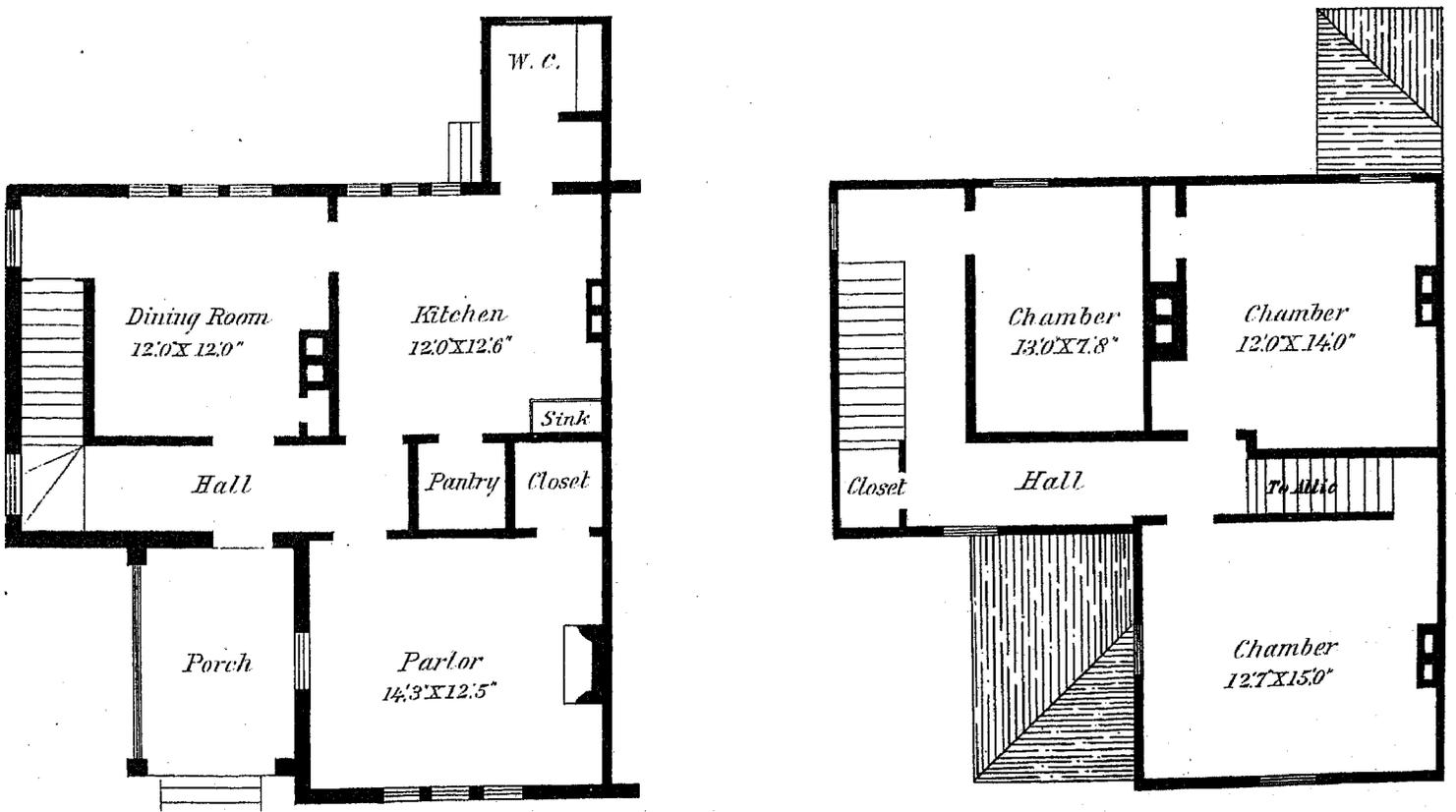


FIG. 1. PERSPECTIVE VIEW.



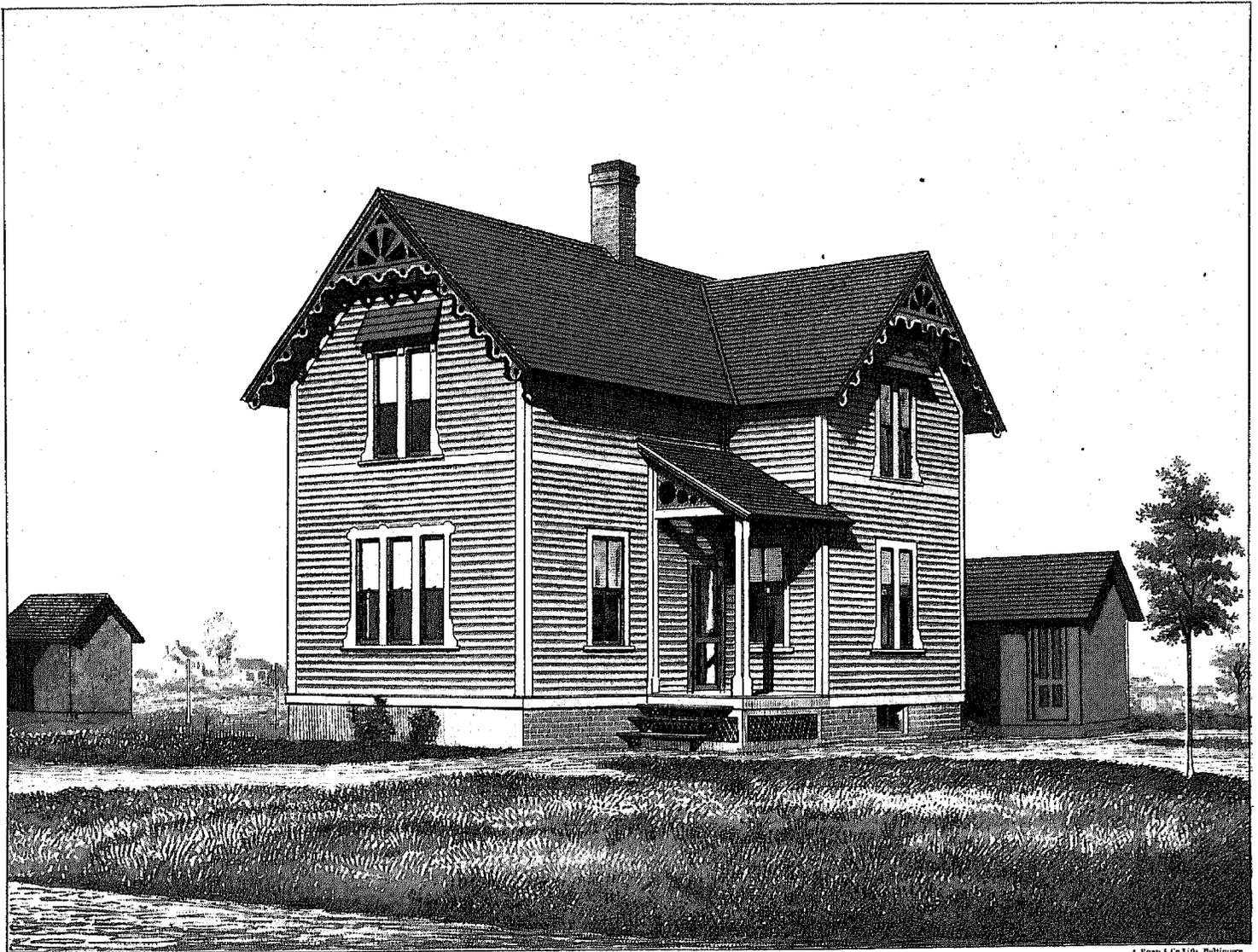


FIG. 2. PERSPECTIVE VIEW.

A. Keen & Co. Ltd., Baltimore

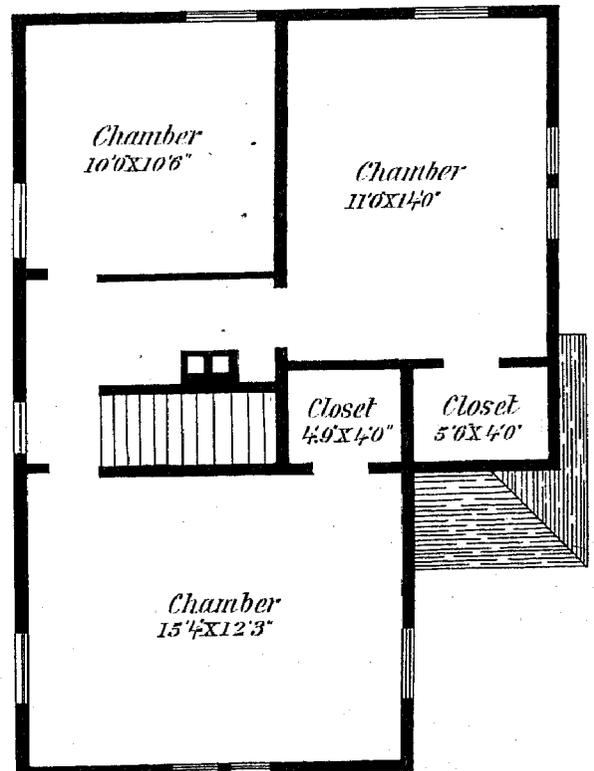
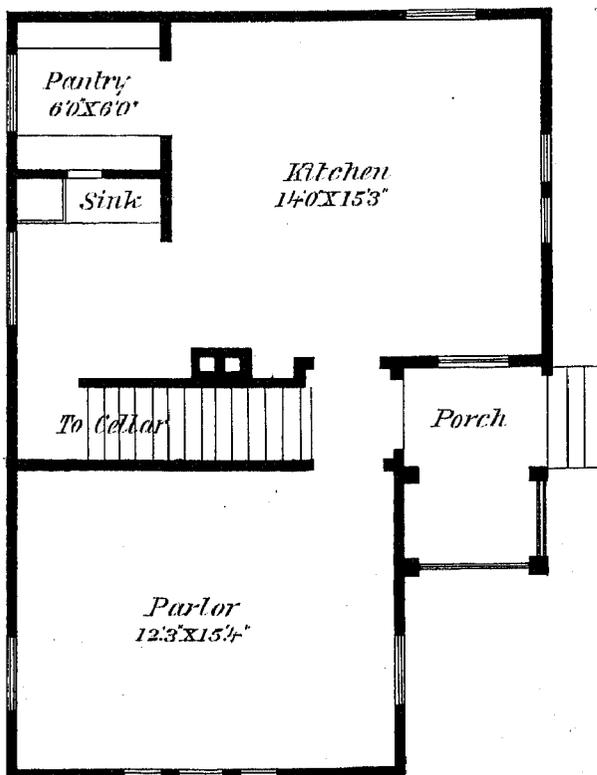
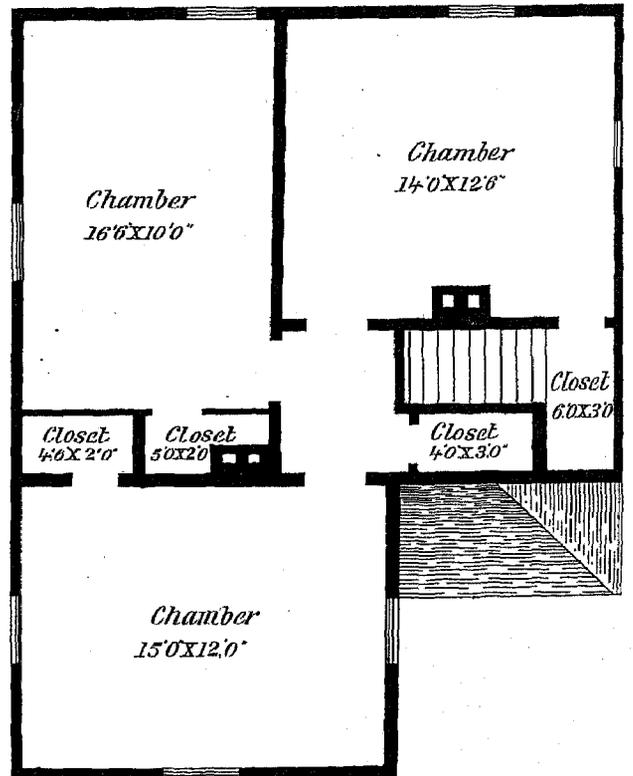
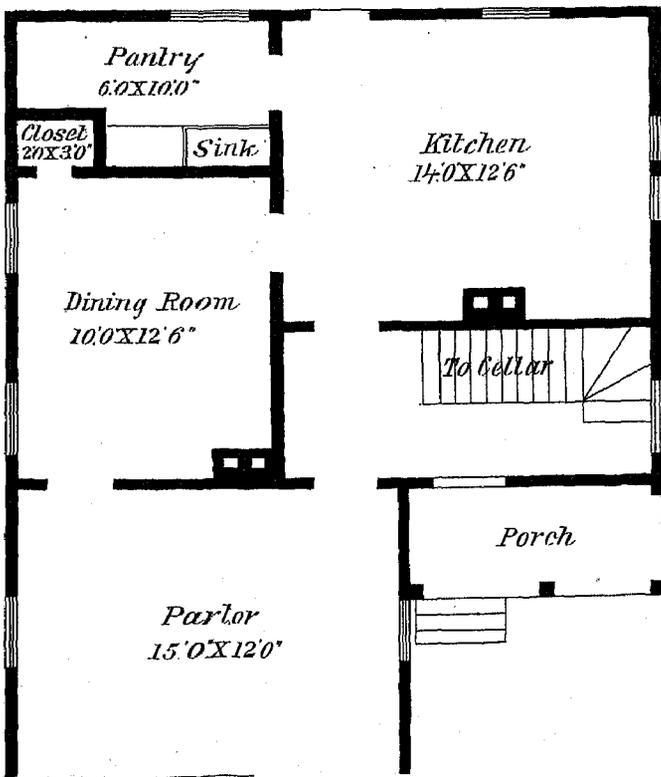




FIG. 3. PERSPECTIVE VIEW.



depends largely upon the temper in which employers carry the responsibility intrusted to them. I know of no trust more sacred than that given into the hands of the captains of industry, for they deal with human beings in close and vital relations; not through the media of speech or of exhortation, but of positive association, and by this they can make or mar. Granted that the material is often poor, very poor, the intellects dull, and that the apathy of the operatives often offers antagonism to efforts in their behalf, then all the more sacred the trust and all the greater the responsibility. The rich and powerful employer, with the adjuncts of education and business training, holds in his hand something more than the means of subsistence for those he employs; he holds their moral well-being in his keeping, in so far as it is in his power to mold their morals, and he thus becomes something greater than a producer. At all events, he has no right to return the apathy and indifference of his people with apathy and indifference. Nor is it sufficient for him to say that the operatives he congregates accept work with its consequences, as he is not justified in placing men and women in jeopardy, physically, without providing and insisting upon the adoption of sufficient precaution. Law and public sentiment, or both, in the future will insist upon the saving of the moral characters of operatives as well as their limbs and lives; and they will insist, too, upon means for protecting the child of a woman obliged to toil in the factories before as well as after its birth.

The facts from the industrial history of nations, not the gift of prophecy, enable us to foretell the future of a system which has in it more possibilities for good for the masses who must work for day wages than any scheme which has been devised by philanthropy alone. This may sound like sentiment; I am willing to call it sentiment; but I know it means the best material prosperity, and I know that every employer who has been guided by such sentiment has been rewarded twofold: first, in witnessing wonderful improvement in his people; and second, in counting an increase in his dividends and in the wages of his operatives.

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