

COTTON FROM FIRST TO LAST.

By Edward E. Hale, D.D.

IN a little account of India, Herodotus says that it is the finest of all the countries of the East. He says that, with the exception of the horses, the beasts and birds in India are the largest in the world. He says the people get their gold by washing it out, while other people have to dig for theirs. And then, as the acme of their lazy prosperity, he says their wool grows on trees. "The trees there, in a state of nature, bear woolly fruit, which in beauty and in strength surpasses the wool from sheep, and the people of India wear clothes made from it."

This is the first allusion to cotton made in western literature. It is a little curious, indeed, that no distinct reference to it is to be found in the Bible, which runs back to much further than Herodotus. The Jews must have seen cotton awnings and probably cotton clothing in Babylon; and there could hardly have been an army from the East on the soil of Palestine, but embodied many cotton-clothed soldiers.

Herodotus, it will be seen, speaks of it by way of gratifying that curious natural wish of the human heart, that things may grow on trees. In all travellers' stories, their accounts of such marvels are the most attractive. Roast chickens, growing on trees, are a part of the bill of fare in Peter Wilkins. In the same category, Herodotus, wishing to commend India to his readers, tells them in brief that there is no need to feed or wash sheep, — none to clip their wool. An end to shepherds, and to wolves, — no nightly watches, no daily tramp for the recovery of ram or of lamb. All this disappears when he tells his readers that the wool grows on trees.

And alas, the readers believed him as much and as little as the readers of Peter Wilkins believed him!

It is a gentle reproof to our western braggadocio, that till the most recent times all our jennies and frames have never done that which could match with what the East Indian men and women did without any

wheels, — with their distaffs only, more than two thousand years ago, and nobody can tell how much more. The *Arabian Nights* are full of stories of muslin so delicate that pieces of it could be passed through a lady's ring, — and there was such muslin worn in India long before the time of the *Arabian Nights*. It was not until Hargreaves's time that English spun cotton could be used in a shuttle at all, — and it is only very recently that the fineness of the finest East Indian thread has been attained anywhere but in India. Perhaps this is a matter of climate. It is well known that our highly charged electrical air is unfavorable to the finest spinning. The muslin made by the East Indians is said by the Greek writers to make "transparent garments" when wet, and in modern times Mr. Ward speaks of muslin which is invisible when it lies on the grass wet with dew.

The colors and figures used by the Indians were, in many cases, very beautiful; and one is sorry to be told by Mr. Wilfrid Blunt that it has been necessary for the triumphant march of free trade gradually to destroy the ingenuity and skill which produced such fabrics. He tells us, — what every lover of beauty, industry, and art regrets to know, — that the industrious people around Madras, who once could carry their spinning with them and work at odd minutes on the most beautiful fabrics in the world, are now condemned to idleness by that great requisition of the economists, that men shall buy the cheapest instead of making the best. Of course, under the theory of free trade, the East Indian spinners should emigrate to Manchester, because the coal and iron are there, and should reduce the local wages by their competition. But this they have not yet chosen to do. And you and I are expected not to complain, while a generation or two of industrious people learn to live in indolence on five cents a day, so that a great theory may be fairly tested.

Readers will remember that some of the Indian names still hold. Muslin means something which was sold at Mosul. Calico

means something which came from Calicut. Our American use of calico for a printed cloth only is quite recent.

As to our dear New England. If any of the readers in Yankeeland care to send to Baltimore for some cotton-seed, ordering an early variety, — if they will soak this a little first and then plant it in hot-beds, say in the end of April, or early in May, — if they will transplant to the open garden the young plants when they are an inch or two high, they will have, before the end of summer, if their luck has been good, the showy white, yellow, and pink blossom which is the glory of the southern plantations in the time of bloom. Nay, all this can be had without the hot-bed, though then, of course, the blossom will come later and the seed will not ripen. But if your hot-bed work has been careful, and there are no early frosts in September, you may harvest a few bolls of ripe cotton-seed. Pick out the seed carefully, — there will be so little that you will not need to gin it, — and take it down in a basket to your father's mill. Ask that nice Jane Hutchinson to take it, just before work is stopped, and see if she cannot work it in on her spindles. She is a bright girl, and I think that she and the overseer and your father will be able to manage it among them, — and they will like to try. For the experiment of manufacture from New England-raised cotton has not, I think, been tried before; and Yankees love novelties. As matter of the routine of business, your father and the overseer and Jane Hutchinson would rather put a bale of uplands through the mill than your basketful.

It has been observed that in great critical years, cotton, had it been planted, would have ripened in New England. Thus the frosts of 1861 held off so that the cotton boll ripened here. As much as to say that the cotton of Carolina was king no longer.

BUT New England found uses for cotton long before there were any jennies or other spinning-frames. First of all, it was used, as Cortes had used it, and as Montezuma's ancestors had used it, to make corselets against Indian arrows. Put up a good quilted "comfortable" of your grandmother's for a mark, the next time you have an archery

party. There will be one great advantage; namely, that you can hit it, which is more than can be said of a target. An iron arrow, sharp pointed, will go through it. But you will find a flint arrow hardly ever cuts through; and by the time it has cut through, its force is very much abated.

Well, as I say, the Mexican princes had found this, and so their soldiers wore cotton-quilted armor. And Cortes was not above learning from them, and he clothed his men in cotton-quilted corselets to fight the Mexicans; and the Connecticut people were not above learning from both, so, after their Pequot war had taught them what cold flint could do, well driven home from a bow of walnut or ash, they sent to the West Indies for cotton for their corselets. This I learn from this wonderful new book on New England commerce, by Mr. Weeden, from which you may learn almost anything, and which the readers of the NEW ENGLAND MAGAZINE will get the good of in more ways than one; for it contains all the elements of New England romance and poetry. The early imports into Connecticut and the Bay belong to the year 1640 or 1641. They rapidly increased. For the women who could spin flax found they could spin cotton. And there never was a house-mother in Yankeeland but who knew how convenient "cotton-wool" was in that great business of fighting winter, and keeping people warm at night. Winthrop says in 1643 of his neighbors, "They are setting on the manufacture of linen and cotton cloth." It is worth note that this is almost as early as our earliest mention of the manufacture of cotton in England. This mention is found in Bartholomew Roberts's book, published in 1641. But that refers to manufactures which had existed for some time. The Assembly of Connecticut, in 1642, orders the town of Windsor to take £110 worth of cotton from Mr. Hopkins, Wethersfield the same, and Hartford £200. This was probably to be used for corselets for their trainbands. The figures show how large were Mr. Hopkins's importations, which seem to have been, in some sort, on the public account. About the same time John Winthrop speaks of cotton from Barbadoes as abundant here.

As early as 1661, at the school for Indians at Martha's Vineyard, "wheels, cards, and cotton-wool" were provided; so that

the Vineyard red women were to be clad as Montezuma's princesses were.

THE curious will find ample food for study in the details given by Mr. Weeden of the steady import of cotton,—always from the West Indies, observe,—from the dates given above to the time of the first efforts to manufacture cotton by machinery, of which, and of the triumph resulting, he gives the narrative. Much of the cotton thus imported was doubtless used as wool, as cotton-wool is used now. But, as has been said, the fingers that could spin flax could spin cotton, and did. Cotton thread, as spun by the spinning-wheel and woman's fingers, was not regular enough to be shot back and forth in the shuttle, and the thread thus made was used for the woof only, the warp being made of linen. It is said that no fabrics, of which the whole substance was cotton, were made in England before 1760. The English or American spinner could not spin with the regularity of the East Indian girl.

Ben Franklin had watched the progress of spinning, and he once expressed the hope that he should live to see the invention of a machine which should spin as much thread in an hour or a day as two girls could. He lived to see much more than that. For, though he nowhere mentions it, I believe, it can scarcely be that he did not take some opportunity to do so, in his longest visit in England. For Hargreaves invented the spinning jenny in 1764, and set eight spindles in one frame to spinning light thread at one operation. As good an account as any, for the general reader, is that given by Miss Edgeworth in *Harry and Lucy*. This was written about 1823, when people were alive who had seen and worked the first jennies. Lucy's natural wish was that it might prove that the machine was named from some nice Jenny whom it had redeemed from drudgery. But this wish, it seems, cannot be gratified. "They do say" that the machine was named, as Whitney's was afterwards, a "gin" or an "engine," and that "jenny" is only a corruption from that word. This is a pity. One would rather trace it to the Djinnns of the *Arabian Nights*, as Mr. Lowe and Captain Baker choose to spell them, whom we knew as "genii" when we were children. Djinn,

genie, gin, engine, or ingenium,—the philologists must let us believe that the root is in that solid little "gen," which is in the genesis of all things, and provides all the *ingenuity* of the world.

PAPERS in this magazine next month will lead the reader along to trace the marvellous *ingenuities* of Arkwright, of Crompton, and the later masters in this affair. My business is with the romance and poetry of it, which put their heads forth at every corner. None of them—not Ben Franklin himself—guessed that there was a lad in Westboro', in Massachusetts, mending fiddles, taking clocks to pieces and setting them going again, making knives and buttons for a livelihood, who was going to furnish all their mills with more grist than the world dreamed of. Eli Whitney was born the year before Hargreaves made the first spinning jenny. There are, I think, people in Westboro', his old home, who have seen him in his hale old age; for he died as late as 1826. The story used to be told of him there, that in his eagerness to learn how the family clock was made, he stayed at home from church one Sunday, under pretence of sickness. So soon as the family was well out of sight he seized the clock, took it to pieces, "learned the law of the instrument," and put it together again, before they returned. Happily for him, and perhaps for the world, the clock continued to perform well,—better than many other clocks which have thus been treated by the curious. His father made knives, and the risks of commerce in the Revolution gave a certain protection to this nascent industry. Eli Whitney himself earned enough at it to be able to go to Yale College, and graduated there in 1792,—at the very time by the way, I think in the very month, when Richard Arkwright died. The last time I spoke to Alpha Delta at Yale College, I took pleasure in reminding the boys that it was not a hundred years since one of their graduates, in six months after he left college, had made the invention which revolutionized the commerce, not to say the economical and social order of the world.

Years ago I was in correspondence with a near friend, an enthusiast, as I am, about scientific and technical education. He is

himself a university man through and through,—“all round.” But in his enthusiasm he ventured to say, “Where would your manufacturing and commerce and politics be, were it not for Eli Whitney, the mechanic and inventor?” To whom I replied, “Yes, where? And what would Eli Whitney have been, had he not passed through Yale College?”

Well, Eli Whitney had spent all his money, and more, to go through college. And first of all he had his debts to pay. So he undertook to go to Georgia “to teach,” and made an engagement with a Georgian planter, nowhere mentioned in the biographies, to be a tutor in his family. Whitney was detained by illness, and when he came to Georgia found that the Georgian had repudiated his engagement,—as wicked Georgians will; for be it said, with Mr. Grady’s permission, there are bad Georgians and good Georgians. Perhaps it was that Whitney was too late. All fell out well, as you shall see. On the passage out, Whitney had made the acquaintance of Mrs. General Greene, the widow of the great second to Washington. She was returning from her place in Greenwich Garden—not far from where I am writing this all for you, Miss Reader—to Georgia, where the newborn state had given her husband a plantation. When Whitney found he had no home, she asked him to spend the winter with her; and he did so. On that visit the fortunes of empires turned

FOR one day, as she sat at work with her tambour frame, she said it was badly made, and often tore the delicate web. Whitney made her a better, which worked admirably. This gave her a high conception of his mechanical ability. He was reading law, as the winter passed, but he found time to make wonderful toys, and earned the reputation of a genius. Always that G E N.

One day in November, not yet six months from Commencement, a party of gentlemen at the house were discussing the depressed state of southern agriculture. They spoke of the difficulty of sending cotton to market. To separate a single pound of their cotton from the seed was considered a good day’s work for a woman. And some one said it was a pity there was no machine for such work. “If

you want a machine,” said Mrs. Greene, “apply to my young friend here. He can make anything.” And she told of his achievements. As for Whitney, he had never seen cotton or cotton-seed, and said so. And the conversation seems to have dropped here. But the subject rested on his mind.

It is interesting to know that he could not find any cotton in the seed on Mrs. Greene’s plantation. He had to go to Savannah, and after a long search through boats and warehouses, he found a small parcel which he carried back to her house for experiment. She set aside a basement room for his use. And, by the month of March he had made, first a working model, then a machine of working size, which operated to his entire satisfaction, and to the admiration of Mrs. Greene and of his classmate, Phineas Miller, who were his only confidants.

By the aid of this machine one person could separate as much cotton from the seed in a day, as a grown man or woman could in a year by hand picking. The great invention was made. An industry was given to the Gulf states, which ended in their supplying the world with cotton.

When Whitney invented this machine, the annual produce of the entire world, so far as it was known to commerce, was a million and a quarter bales. Of this amount the southern states furnished but little over five thousand bales. The same states now furnish six or seven million bales, and the product of all other countries is almost insignificant in comparison.

So magnificent were their exports, that a few leaders thought that cotton was King of the World. Under this notion they defied the United States in April, 1861, to learn in four years that in America The People is sovereign. How many of these leaders there were I do not know. Mr. Edward Everett used to say there were “about nine.” This seemed as if he had counted them, and could have named them. But he never did name them in my hearing. There are not many of them left now.

WITH the stimulus Eli Whitney gave to all cotton industries, the work of Hargreaves, of Arkwright, of Bolton, and their successors took new proportions in Great Britain. Aladdin’s lamp could not have

done so much for them. I have an impression that Napoleon once said that the cotton manufacture gave England the wealth which conquered him. I cannot put my eye upon the passage, but the remark, all the same, is true. The spinning jennies conquered, though poor Hargreaves was driven from his old home by indignant spinners who did not mean to be turned out from their old industry. He was on the tide, and they were resisting it. Scotland became interested in cotton manufacture. And the cotton establishment at New Lanark seemed to many sensible people to be the coming in of the millennium.

I knew old Robert Owen somewhat intimately in his old age. He it was who developed New Lanark, and by a little art one could make him talk of its successes and marvels.

He was born, fortunately, "to a moderate fortune." For I observe that a moderate fortune is an excellent thing for a reformer to have about him. He "caught on," as our excellent slang says, to the new business of cotton spinning, at Manchester. He married Miss Dale, the daughter of David Dale, himself a distinguished man, who had as early as 1786 established some spinning mills at New Lanark on the Clyde. Mr. Owen became proprietor of these mills in 1800, and, best of all, went to live there himself with his wife. In the course of fifteen years he had made a model community there, which attracted the attention of humane people all the world over. There were evidences enough, here and there, that factory life, the great invention of the century, might not be the best thing for women and children, unless somebody took care of their health and education, and, in general, for their welfare. The success of New Lanark really was, that Robert Owen, a generous, disinterested man, did take such care of his people, and did it on wise and far-sighted plans. If women, who had young children, worked in the mills, he had day-nurseries for the little ones, with people we should call kindergartners for the very youngest. For all the boys and girls who worked he had evening schools; and there were classes in these for men and for women. He introduced, in a hall arranged for the purpose, popular lectures on subjects of familiar interest, being, I

think, the first person who did so, by half a generation. He had great enthusiasm for music and arranged for a great deal of it. His work hours were from six in the morning till seven in the evening, which we think fatally long. But the provisions for health and comfort for the work people, including a liberal allowance for dinner, were such that the people who visited New Lanark did not challenge, so far as I know, the oppressiveness of this part of the system. A like hardship existed in every cotton mill in England at that time.

Now all this succeeded, as everything succeeds which rests on faith in man's co-operating with man, and on the wish to make people better and stronger and happier. New Lanark was a picture of "ease, happiness, neatness, and content." Owen himself was not for a moment satisfied with making twenty-five hundred people happy, contented, at ease,—training them to music and science while they earned their living. He soon conceived the idea that the whole world could be taken in hand in the same way, and should be.

When the peace of 1815 opened England to curious travellers from the rest of the world, New Lanark was in the prime of its success. Distinguished people used to be taken there to see the village as one of the lions of Britain. I think the Emperor Alexander was taken there about the time when his name was given to a little princess who is now queen. Her baptismal name, if anybody cares, is Alexandrina Victoria. But long before Robert Owen saw the Emperor Alexander, he had determined on the plans by which he would save the world. And having that confidence in Napoleon's star, which most of the English reformers of that day held, he took the occasion of Napoleon's leisure at the island of Elba, to call upon him there, and unfold his system. Napoleon was hospitable to intelligent strangers and to new proposals. And he showed so much intelligence in discussing socialism with Owen, that the philanthropist left Elba, sure that he had secured an important convert. He told me the whole story in some details, ending with the expression of his bitter regret that the allies could not have left Napoleon alone when he drove out Louis XVIII. "For it was his intention to use for peace the great powers

which up till now he had used for war." With Owen this meant that, had Napoleon been left to himself, he would have introduced the system of "family unions" all over France.

FAMILY Unions are now well-nigh forgotten in the successive plans of St. Simon and Fourier and the larger crowd of to-day. A Family Union was to be the people who lived on what a New Englander calls a township. These people, as a community, would establish a directory, which took the place of a benevolent parent, which Mr. Owen had taken at New Lanark. The Union would know better than the individual mother how to bring up her babies. So she would be permitted to work for the public and her baby would be cared for at the public nursery. This was the most absurd provision of the plan, and some of the details were sensible and attractive. From the Elba time down, Robert Owen gave but little of his time to the manufacture of cotton, or to the oversight of New Lanark. He came to America to found a Family Union at New Harmony, in Indiana. He left this, I think, under the charge of his son, Robert Dale Owen, who is still remembered as a fanciful, intelligent reformer and politician, who in the later years of his life was greatly interested in Spiritualism.

In 1844 Robert Owen, the father, then eighty-two years old, came to America for the last time. He wanted to press his plan for a fundamental reform of society on the American congress. The American congress was then being manipulated by John Tyler, and by people who owned Texan bonds, to give its consent to the annexation of Texas. It was not much interested in Family Unions. But, till the last week of the session, the dear old man was sure that light would break from the cloud and that a bill would be introduced and passed, appropriating \$5,000,000 and a township of government land for the establishment of a model Family Union.

He was delighted with the telegraph, which showed its first large successes that winter in practical work between Baltimore and Washington. He saw at once that this was all that the Family Unions needed to bring them into accord and harmony.

"You could send in advance that you were coming and your room would be ready

for you, and clothes laid out when you came."

I said one day, a little maliciously I am afraid, "Will it not be a little stupid, dear Mr. Owen, when it is all adjusted, and all the thousand million people in the world are divided off into unions of sixteen hundred and forty-four each?" His face blazed with delight, like Stephen's, as he heard another living person speak of this as possible. I doubt if he had ever had that ecstasy of joy before. I went on, "What in the world will they all do?"

For it was just dawning on the most advanced of us, that the highest aim of man is not gained by making all the thousand million work ten hours a day in cotton mills. I am sorry to say this light has not dawned on all the leaders to this day.

But it had dawned on dear old Owen. As if in beatific vision, looking into that future which the next month was to see begun by act of congress and John Tyler, he answered sweetly:

"Do? why, they'll travel. Think of the delight of travelling without expense, without fatigue, and without baggage."

"Without baggage!" A community of shirts and night-gowns, of pocket-knives, hair-brushes, and tooth-brushes. The answer gave one food for reflection.

The truth is, and that the Anglo-Saxon mind finds out, that you must quicken the individual to his utmost ability by giving him substantial independence; while for all those things which every individual needs — water, air, health, education, roads, and the rest — the community in full force must provide.

BUT we must not venture on the philosophies. "I do not want to talk about butterflies, nurse; I want to talk about widows." This is the wise remark of a little girl in *Venetia*. In the same way we do not want to talk about socialism, but we want to talk about cotton. In those days of Texan annexation King Cotton had the innings, and the people who were doing the fielding had to look sharp. Among the other prophecies of that time, you may find this in the *Encyclopædia Britannica*:

"The southern states of America, in which the cotton-wool is raised, from their local defects and the character of the

lower classes, can NEVER become a manufacturing country."

"Never become" is strong and in a sense good; but still one remembers Captain Corcoran in *Pinafore*: "What, never?" "Hardly ever."

I have sometimes wished that some sensible man might be appointed "Professor of America," at Oxford, and another at Cambridge. Such people could teach them a good deal which they do not seem likely to know. But I see no chances of such appointments. Indeed, I know no American college where there is such an appointment: the more's the pity. If I had the honor of lecturing on the Purchas or Hakluyt foundation on America, I would teach them first of all that they must unlearn the use of "never" about the future of America. It is a very dangerous word, and "hardly ever" is much more convenient after forty years.

Thus the establishment of cotton factories in the southern states is now a matter of history. The manufacture has increased rapidly in the last ten years past, and it may be said that the stage of experiment is already passed. Where they at first manufactured a coarse grade of yarns and cloths they are now making a much finer article, so coming into closer competition with the northern mills. In former years the help in the mills were almost wholly from the north. But now the southern help have become competent, and are filling such positions as those of superintendent and other overseers in the mills. A great many of the corporations own most of the town where the mill is situated, they having their churches, libraries, general stores, and quite comfortable houses for their work people, so that everything appears prosperous and comfortable. I obtain these details from some of the gentlemen who have, with genuine forecast, worked for these results since the Civil War. They show how we must translate the "never" of the Encyclopædia.

MR. WEEDEN, at the end of his history of commerce, publishes some instructive and interesting reminiscences by Hon. H. N. Slater of Webster, regarding the early history of his father, Samuel Slater, whose apostleship we are about commemorating.

"The initial step towards cotton manufacturing in this country was taken when S. Slater, at the age of fourteen, in 1782, apprenticed himself to Strutt in England. Strutt was a partner of Arkwright, and had perhaps the best arranged mill, containing the new system of drawing, roving, and twisting cotton for warp and woof.

"He closed his apprenticeship in 1789, and was invited to come to the United States, as Pennsylvania wished to introduce cotton manufacture, a duty of ten per cent on the fabrics having been instituted under the new constitution. While in New York, however, Slater was induced to correspond with Moses Brown of Rhode Island, who replied, 'If thou canst do what thou sayest, I invite thee to come to Rhode Island, that I may have the credit and advantage of introducing cotton spinning.'

"The firm of Almy, Brown & Slater was formed, and started the manufacture of cotton yarns in Pawtucket in 1790, in all the perfection of the best mills in England. It was not imperfect, as has been supposed. Samuel Slater sent some yarns to his old master, who pronounced them as good as any. They were made from Surinam cotton, longer than our present Sea Island, and in fibre like silk.

"Cotton sewing thread was unknown in England, and we are indebted to the Wilkinson women in Pawtucket for the idea which initiated the invention. Using the yarn which had been spun in Pawtucket for a year and a half, these women conceived the idea of a thread which should take the place of linen. They twisted the yarns on their domestic spinning-wheel, and made the first cotton thread in 1792.

"In the sparse population, one of the chief difficulties of the early manufacturers was in procuring operatives, or 'help.' The mills succeeding Slater's were located farther in the interior on this account. Mr. Slater was obliged to seek operatives and induce them to emigrate to Pawtucket. The wages paid these operatives ranged from eighty cents to a hundred and forty cents per day.

"At first Salem was the chief market. Hartford was opened next, when the supply accumulated; then Philadelphia became the chief mart of all. New York or Boston hardly took any of the product."