WEAVING.—No. I.

A BRIEF ACCOUNT OF ITS HISTORY.

SINCE the introduction of the power loom, towards the end of the last century, so great has been the improvement made in the various processes of weaving, that it has almost become a new art. Previous to that time little had been done to assist the weaver in the drudgery of plain weaving, or to relieve him of the tedious labour he was compelled to undergo, in the arrangement of his loom, for the production of any new pattern or design. Certainly the fly shuttle had been invented, and by its means the efficiency of the hand loom had been exceedingly increased, still the work had to be done without the assistance of any motive power, and in the production of figured goods an amount of labour was required that can scarcely be imagined by the weaver of the present day.

From about the middle of the sixteenth century the history of weaving becomes clear, and its advancement can be traced with some degree of certainty. But previous to that time little is known, practically, concerning it. That the art had been practised from the most remote times cannot be doubted. Not only is frequent allusion made in the Old Testament to the "loom," the "weaver," and "fine linen," thus showing that the ancient Egyptians excelled in the art nearly 4000 years ago, but the numerous remains of mummy cloths afford ample proof of their skill. It cannot be supposed that other nations did not also know and practise the art, to a more or less extent; but it is probable that the superior skill of the Egyptians may have been imitated by them, and particularly so in the southern parts of Europe.

At the invasion of England by the Romans, it has been said that Julius Cæsar found the native Britons entirely ignorant of the art, but this statement has been refuted, from the circumstance that pieces of coarse cloth have been found, with other remains, in ancient British barrows.

The Romans established an imperial factory at Winchester for the manufacture of cloth for the use of their army, and this is perhaps the earliest record of the existence of the art in Britain. In the eleventh century the weavers must have become of considerable importance, for they formed themselves into guilds or corporations, and had royal charters bestowed upon them. In the reign of Richard the First, a law was passed for regulating the sale of cloth, and Edward the Third was particularly anxious to encourage its manufacture, as is thus related by Speed in his history of that king:

"So that when hee found that the industrious Dutch, by their manuall labours, grew to so great a strength and opulence that their friendship bred rivaltie in puissant monarches, hee, like a father, regarding the public weale of his country, ordained that all clothworkers who would repair hither out of forraine parts, and exercise their trades, should have free access and sundrie priviledges. By which invitation, as very many were drawn, so was it that principal cause of advancing that honest, best, and most beneficial trade in the kingdome, to the great enrichment, strength, and honor thereof."

If we add to such allusions to the art as the above, the various descriptions, to be found in ancient authors, of the robes of kings and priests, banners, shawls, embroidery and tapestry, we possess, perhaps, all the practical knowledge that history has given us. Some specimens of ancient art still remain, foremost amongst which may be placed the Bayeux tapestry, representing the history of the Conquest of England by William of Normandy. It was embroidered on linen by Matilda, wife of William, and her assistants, and is too well known to need further description here. A beautifully executed fac-simile of this work, in photography, is placed in the gallery of the Albert Hall, Kensington. But although such works as these have been generally referred to as instances of the weaver's skill in former ages, they can scarcely be considered as such, for they have depended more upon the needle than the shuttle in their production.

The Egyptians appear to have practised the manufacture of linen with the greatest success, although the manufacture of cotton and woollen cloth was common, also, amongst them. But cotton appears to have always been most cultivated and manufactured in India, whilst silk emanated from China, and in Europe the manufacture of cloth was mostly confined to the use of wool. Of the loom itself, as used in ancient times, a few representations exist, which we shall hereafter refer to.

Such are the leading facts that we possess of the history of weaving previous to the middle of the sixteenth century, as before stated.

In the year 1567 many Flemish workmen came to England, in consequence of the tyranny of the Duke of Alva, and settled in various parts of the country, where they introduced the manufacture of baizes, serges, crapes, stuffs, and damasks. The art of knitting had also become well known and practised at this period, and the various manufacturing arts were rapidly advancing in importance.

Silk fabrics were becoming more used, and it was in 1560 that the well-known circumstance of the silk stockings being presented to Queen Elizabeth by Mrs. Montague, the queen's silkwoman, occurred. At this time there was a society of silkwomen in London, and in 1562 the silk throwsters formed themselves into a fellowship.

Still, the manufacturing arts depended almost entirely upon the manual labour and skill of the workmen. The application of motive power to the throwing of silk was probably practised in Italy at this period, and from the simplicity of the process, compared to the spinning of cotton or wool, it may be considered as the first of the textile arts to which automatic machinery was applied.

About the year 1589, William Lee, curate of Calverton, near Nottingham, invented the stocking-frame—an event perhaps the most interesting in the whole course of manufacture. Worsted stockings had taken the place of cloth hose, and knitting formed an important branch of domestic industry. Lee, having noticed the slow process of hand knitting, conceived the idea that the work could be done equally well, and much more rapidly, by mechanical means. After repeated trials he succeeded in making a working model. This he had fixed up in a house in Bunhill-fields, where, through the influence of Lord Hunsdon, Queen Elizabeth went to see it. The queen expressed her sense of the ingenuity displayed by the invention, but to Lee's great mortification, showed her marked disappointment, that instead of fine silk hose, as she had expected, the production was a coarse worsted stocking. Notwithstanding this untoward circumstance, Lord Hunsdon had faith in the ultimate importance of the enterprise, and pressed this conviction upon his mistress, begging that a patent of monopoly might be issued to the inventor. But it was of no avail, and Elizabeth's answer to Lord Hunsdon was as follows:

"My lord, I have too much love for my poor people, who obtain their bread by the employment of knitting, to give any money to forward an invention that will tend to their ruin, by depriving them of employment, and thus making them beggars. Had Mr. Lee made a machine that would have made *silk* stockings, I should, I think, have been somewhat justified in granting him a patent for that monopoly, which would have affected only a small number of my subjects; but to enjoy the exclusive privilege of making stockings for the whole of my subjects is too important to be granted to any individual."

To the credit of Lord Hunsdon, he still held faith in the invention, and actually apprenticed his own son to Lee, that he might learn the art of frame-work knitting. Lee also continued his labours, and in 1598 he completed a frame adapted for knitting *silk* stockings. He presented the queen with a pair thus produced, which she accepted, with many praises for their elasticity and beauty of texture, but neither patent nor money were forthcoming to do honour to the inventor!

After the death of both Lord Hunsdon and his son, Lee met with neglect, and fell into a deep melancholy. He was afterwards induced to go to France under promise of encouragement there, and would have succeeded, but the assassination of the French king, Henry IV., taking place at the time, quite destroyed Lee's prospects, and he died in Paris of a broken heart. This occurred in the year 1610. Mr. Felkin, in his "History of the Hosiery and Lace Manufactures," to which we are indebted, gives a most interesting account of Lee's life and misfortunes.

The distinguishing feature of Lee's invention is, that it is complete in itself, and emanated from one brain only. There is, perhaps, no other instance of a textile machine of equal complexity having been originally invented in so perfect a form, and when it is considered that this machine has been in use nearly three centuries without material alteration, and that it led the way to the grand inventions employed in the hosiery and lace manufactures, it will ever command admiration and sympathy for its inventor.

Towards the end of the reign of James I. silk throwing was introduced on a considerable scale into England by Mr. Burlamach, a London merchant, and it rose so rapidly to such importance, that in 1629 the throwsters of London were incorporated under the title of the "Masters, Wardens, Assistants, and Commonalty of Silk Throwers," and in 1661 they are said to have employed in London above 40,000 men, women, and children!

It was in 1679 that M. de Geunes, an officer in the French navy, presented to the French Royal Academy a model loom, which he termed an "engine for weaving linen cloths without the aid of a workman." The shuttle is shown to be carried through the warp by being inserted into the end of a lever, and a corresponding lever meeting it half way in the shed of the warp receives it, and delivers it on the other side of the cloth. The invention is valuable only on account of its being the first known practical suggestion for weaving by motive power. In the "Introduction to the Abridged Specifications Relating to Weaving," by Mr. Woodcroft, a full account is given of the model, of which we shall hereafter give an illustration.

In the year 1685, in consequence of the revocation of the Edict of Nantes, many merchants, manufacturers, and artificers, were compelled to fly from France, and it has been computed that nearly a million of the inhabitants left, of which number about 70,000 made their way to England and Ireland. They brought with them such property as they could, and from their superior skill in the various arts, the manufacturing industry of this country reaped such important advantages that it would be difficult to over-estimate their influence or extent.

In the commencement of the following century a Mr. Crochet established a silk-throwing mill at Derby, but from some cause the attempt proved unsuccessful. Shortly afterwards, in the year 1718, Mr. Thomas Lombe (afterwards Sir Thomas Lombe), a merchant of London, introduced a more perfect mode of silk-throwing, which he had surreptitiously obtained from Italy. He procured a patent for the machines, Sept. 9, 1718, and in this patent he states, "That by constant application and endeavours for several years past, and employing a great number of agents and workmen, both here and in foreign parts, I have, at very great expense and hazzards, found out, discovered, and brought into this kingdom, the art of making the three capital engines, or setts of working tools, called in Italy 'Il inganatore,' or 'incaruator,' 'fillato' and 'iltort.' The first to wind the finest raw silk, with the second to spin it, and with the third to twist it into organzine silk."

At very considerable expense for those days, he built a mill at Derby, near to the site of Crochet's, which was long considered one of the wonders of England. Compared with modern mills it was a humble

affair, and has long since been converted into a corn mill. At the expiration of Lombe's patent in 1731, he applied to Parliament for a renewal or extension of it. From the national importance of the trade, it was not allowed, but a grant of 14,000*l.* was made to him, in consideration of the services he had rendered the nation. This was on condition that a complete set of working models should be supplied to the Government for the information and instruction of the public in the processes of throwing. The models were deposited in the Tower of London; but there is reason to believe that they were wilfully destroyed some thirty or forty years ago. Some slight portions of them have been saved, and are now in the Patent Office Museum, Kensington. They consist of a reel, one or two spindles, with bobbins and flies, and a portion of the "sledging" rail, with "sledging" blocks or pieces, as the middle bearings of the spindles were formerly called.

In 1733, John Kay, a native of Bolton, took out a patent for his invention of the fly shuttle. He had previously invented the method of making the reed of thin slips of metal instead of slips of reeds. These two inventions, alone, are perhaps the most important ever made to the loom. Mr. Bennett Woodcroft, in his "Brief Biographies," records that the Yorkshire men first used the fly shuttle, but they would not pay for its use, and they formed a company called a "Shuttle Club" to cover each others' costs when prosecuted.

In 1745, Kay and Stell applied a "tappet shaft" to the "Dutch loom," by which means it could be worked without the use of treadles, &c. To Kay, also, is attributed several other most valuable inventions, amongst which may be mentioned the machine for making cards, as used for carding cotton, which is now in the Patent Office Museum, Kensington, and the wheel shuttle used in narrow goods looms. It is difficult to conceive the persecution this ingenious man met with. When at Bury he attempted to make improvements in spinning machinery, but his house was broken into, and all his goods destroyed, whilst he himself narrowly escaped with his life. He ultimately went to France, where he died in poverty, but no stone tells where he lies.