Flax Industry.—No. 14.

FLAX INDUSTRY IN FRANCE.—It is not known at what precise time the use of fabrics from flax, and the cultivation of the plant, were introduced into Gaul. It is probable that the Romans, at the period of their rule, cultivated this plant there and made garments of it; but it does not seem probable that the barbarians of the North, as soon as they were established in the Gallo-Romanic provinces, should have remained a long time without cultivating the plant from which in these forests, they had obtained their clothing.

The most reliable documents which we possess respecting the culture of flax in France, date from a period much nearer our time. According to these documents, Beatrice of Gaure, Countess of Penkembourg, in Flanders, having married in the 13th century, a nobleman of Laval, introduced into her new country some weavers from Bruges, and taught the inhabitants of Anjou and Brittany the culture of flax and the art of weaving it after the manner of her native country. Laval soon possessed a manufactory of linen as celebrated as those of Flanders. Maine, Anjon Vendee, and Brittany were soon famed for their abundant crops of flax; but in spite of this example and the prosperity due to this production, the cultivation of it spread slowly into most of the other provinces. "Our opinion," says M. Mareau, a French writer, "is that Beatrice of Gaure was instrumental rather in perfecting than introducing the cultivation of flax and of weaving. For in reality this knowledge was carried to England by the Normans at about the 11th century, from which we must naturally infer that the province of Normandy had been long acquainted with flax, since its inhabitants were able to appreciate the advantages and the resources which this material offered at the time of the invasion of Great Britain."

The ancient celebrity of the pulled flax of Valenciennes, of its cambrics and lawns—a celebrity which she has preserved amid all the revolutions which industrial pursuits have encountered, would seem to show that this country understood and practiced the cultivation of flax and the art of spinning at the same time as Tourney, Courtray, Bruges, and the other cities of Belgium. Although it may be shown from the history of flax husbandry in Belgium, that the weaving of damask was practiced in that country from the 15th century, it would appear certain that this branch of industry had made more progress in France than with her neighbors, for the manufacture of damask table cloths was introduced into Andernarde from Lille in 1665. At the present day the flax culture is receiving great attention in France, and is destined to be one of the most important agricultural staples of the country, inasmuch as while favored by soil and climate, the exertions of Government and the efforts of private individuals are directed unceasingly to this end.

The cultivation of flax in France is more universal than any other one product of the soil. Like the potato in the Northern States of this country, it is considered as a necessary portion of every cultivated tract. "Perhaps," says M. Mareau, "not a single commune is to be found there where there will not exist at least one parcel of land set apart for this crop. The little reserved field of the petty farmer, or the square garden of the proprietor who produces flax is cultivated, carefully tended, and pulled with that interest which attaches to everything connected with the family welfare. Expense is not considered, the only object being to obtain fine flax. The family visit it, and when it is gathered the housewives show it to their neighbors and receive their praises mingled with a little envy. Each one strives to gather as much as may be needed to repair and replace the linen of his family, in order to prepare, by a wise foresight, for the outfit of his children to aid in making the cloth which must clothe them. The mother of the family prepares and spins the flax during the winter evenings, and in many places this labor is done by the light of lamps fed with oil extracted from the seed."

"Beyond the great centers of production even in countries where agricultural labors are, from the peculiarities of the soil or other causes relating to the climate, directed to a particular cultivation, as that of the vine, silk, &c., we find that there springs from the products of a limited cultivation of flax a commerce circumscribed, it is true, but still sufficient to insure a certain support to the artizans who engage in the business. It is from this crop of the housewife that the spinner and oil presser of the neighborhood live, two employments which, where the progress of manufacturers, by the division of labor and the consequent good market for its products transformed the world, seemed to remain unchanged in the midst of the commune, as if to show perpetually to new generations the contrast between the simple and honest manners of our fathers, laboring in families, with those of the workmen, for the most part so different, who live crowded together in large workshops."

Apart, however, from the domestic flax industry of France, which we have shown to be so extensive, there are six districts where the cultivation and manufacture of flax is especially the business and the source of wealth to the inhabitants. These districts, known from the designation of their principal towns, are Lille, Abbeville, and Saint Quentin, Lisieux, Morlaix, Mans, and Fontenay-le-Comte.

Prof. Page's Electric Engine.

MESSRS. EDITORS—Constantly as I am employed in my professional duties, I am not at the present moment at leisure to enter into any minute details on the subject of Prof. Page's experiments, but I cannot resist your request to give you a brief statement of facts relating to the subject, and at a future day I shall publish a full account of the whole matter. Prior to Prof. Page's discoveries, all that was known of the axial attraction of a coil of copper wire was the philosophical toy known as De La Run's Ring, and it was never for a moment supposed that a force of any practical utility could be derived from such a source; the writer has letters from Profs. Faraday and Grove, of London, assuring him that up to the time of Prof. Page's discoveries there never was a pound weight raised by this force. The first experiment of Page was with a very small engine, such as are constantly brought out to astonish the world, by the numerous tribe of inventors on this subject. A larger one was soon after made, which showed an increase of power in greater ratio than the increase of size—this looked like a discovery in the right direction, and he very soon raised a bar of fifty pounds weight, contrary to the expectation of all his scientific friends. This was an onward step, and an engine was then made that drove a double medium cylinder printing press having a power about equal to half a horse power. After this Congress made a small appropriation to carry out the invention, which was expended principally in preliminary investigation; but two engines were built and proved—the first was examined and proved by Prof. Mapes for a company in New York, who thus describes what he saw, in his report, to those gentlemen. After describing the engine in general terms, he says, "to the engine was connected by a shackle bar, a crank on a fly-wheel shaft; the crank 12 inches long, and the fly wheel four and a half feet in diameter." Before starting the engine I tied an arm of the fly-wheel at one-third greater distance from the center than the length of the crank, to an upright beam of twelve inches square, which formed part of the frame of the engine. The cord used was the better kind of bed cord, of great strength, and nearly three-eighths of an inch in diameter, this was passed twice around the fly-wheel arm and post, before being tied, and with pieces of sole leather intervening to prevent the cord from being cut by the corners of the post. Such a fixture, I am confident, would have held a five horse power steam engine from starting with full pressure of steam on the piston, and no previous motion. Not so, however, with this engine, for the breaking the string, and the attachment of the battery occurred at the same instant of time, leaving an impression in the beam to the depth of the cord, despite the protection of the sole leather." Such are the facts noted by Prof. Mapes; we will not quote his sanguine deductions therefrom; but he says he measured the power of this engine, while working, and found it to be 6·84 horse-power. As to the cost of this power, he thinks, from the imperfect data he had before him, it might be about twenty cents per diem for each horse power. This report needs no comment from the writer; it certainly shows anything but failure.

The next engine built by Prof. Page was a locomotive for railroads, which the liberal and accomplished superintendent of the Baltimore and Ohio Railroad generously permitted to be tried on the Washington branch of that road. This machine was of the rudest and most primitive character: Prof. Page had had no experience as an engineer, and but little in the construction of machinery, and it was a matter of wonder and surprise that this rude structure would move at all; it weighed, according to Prof. Page, with its load, between eleven and twelve tuns; its battery was so badly made that he lost the use of a greater portion of it, yet notwithstanding all these difficulties it was run out to Bladensburg and back, a distance of about twelve miles in all. The fastest rate of this engine on a level was at the rate of nineteen miles per hour, which was carefully calculated by the revolutions of the driving wheels. At this point in the progress of the invention, the money furnished by government was all exhausted, as well as that of Prof. Page's immediate friends, and he found himself in debt to a considerable amount, consequently the further progress of the undertaking then stopped; not because of failure, or of any doubt on the part of the Professor as to its practicability or final success. For the above reasons, in my former article, I proved the declaration of your correspondent *false*. I am willing to leave it to your readers to say if the judgment was too severe.

J. J. G.

New York.

Unhealthiness of some Trades.

The following is an interesting extract from a paper recently read by Dr. Chalmers, of London, before "the Society of Arts:"

"There are two coal-whippers at a time of commercial crisis in the coal trade; fewer hands are wanted; one gets turned out of work, and the other is kept on. In six months time the one out of work is starving, because he was so weakened by temporary want of food that he was not fit for employment when he could get it. It is the business of the political economist to remedy commercial crisis. The other man has worked as hard as possible in the way you know these fellows are engaged, jumping up a foot or two, and throwing their whole weight on to a rope for ten or twelve hours a day; it is, I believe, the most wasteful, unscientific, and pernicious expenditure of human muscle that ever was devised. The consequence is that his heart cannot stand it, the fibers are continually strained with these continued violent jerks, and the organ becomes diseased. After a tedious illness the industrious, well-paid man dies at forty. Here it is that industrial pathology comes into play. It is the duty of that science to find out why such and such labor is injurious in a special manner, and to suggest a remedy. In the instance quoted above, it is the sudden jerk which is the cause of the injury to the circulation. Again, painters are liable to cholic and palsy from the use of white lead, and may introduce a substance equally convenient in the shape of white zinc or other substitutes. Tailors sit all day in a confined atmosphere, with the legs crossed and the spine bowed, so that neither the ribs nor the digestive organs have room to act. The consequence, of course, is that the stomach and bowels become disordered, the spine twisted, and the gait shambling, and the power of taking the exercise necessary to health obliterated. If an artist wants to represent a starveling, he takes a tailor as his model; if a plump rosy man was to tell you he was a journeyman tailor, you would not allow such an evidently inexperienced workman to mend your coat. With a life embittered by indigestion, what wonder that a tailor takes to opium, gin, and tobacco, the only things that make existence endurable? Now, cannot these evils be corrected? The cross-legged position is assumed because in the ordinary sitting posture the heavy cloth could not be held near enough to the eye. The problem is to invent some sort of table that would be equally convenient. Shoemakers and bootmakers suffer equally from a constrained position, and also from the pressure of the last against the stomach. Heartburn and painful digestion are so common, that a certain pill in the Pharmacopœia (the Pilula Sagapeni Comp.) is called the cobler's pill. Looking-glass makers and water-gilders are constantly coming into hospitals for mercurial paralysis; and when they go out of the hospital they are not fit for much else than the workhouse. There are two ways of remedying this: one is to give give them some protection against the poisonous fumes; and the other is to improve and cheapen rival modes of gilding and silvering, in which mercury is not used. Washerwomen constantly suffer from varicose veins and other mechanical disorders arising from the standing posture. It is the business of industrial pathology to devise a chair in which they can work as at present, or else to discover some mode of doing the same thing by the agency of mechanics, which is now done immediately by the unaided body—to wear out mechanism instead of muscle, iron instead of energy."

The Power of Imagination.

In a lecture recently delivered by Dr. Noble, at Manchester, England, on the "Dynamic Influences of Ideas," he told the following anecdote of M. Boutibouse—a French savant:

"M. Boutibouse served in Napoleon's army, and was present at many engagements during the early part of last century. At the battle of Wagram, in 1809, he was engaged in the fray; the ranks around him had been terribly thinned by shot, and at sunset he was nearly isolated. While reloading his musket, he was shot down by a cannon-ball. His impression was, that the ball had passed through his legs below his knees, separating them from the thighs; for he suddenly sank down, shortened, as he believed, to the extent of about a foot in measurement. The trunk of the body fell backwards on the ground, and the senses were completely paralyzed by the shock. Thus he lay motionless amongst the wounded and dead during the rest of the night, not daring to move a muscle, lest the loss of blood should be fatally increased. He felt no pain, but this he attributed to the stunning effect of the shock to the brain and nervous system. At early dawn he was aroused by one of the medical staff, who came round to help the wounded. "What's the matter with you, my good fellow?" said the surgeon." "Ah! touch me tenderly," replied M. Boutibouse, "I beseech you; a cannon-ball has carried off my legs." The surgeon examined the limbs referred to, and then giving him a good shake, said, with a joyous laugh, "Get up with you, you have nothing the matter with you." M. Boutibouse immediately sprang up in utter astonishment, and stood firmly on the legs which he had thought lost for ever. "I felt more thankful," said M. Boutibouse, "than I had ever done in the whole course of my life before. I had not a wound about me. I had, indeed been shot down by an immense cannon-ball, but instead of passing through the legs, as I firmly believed it had, the ball had passed under my feet, and had plowed a hole in the earth beneath, at least a foot in depth, into which my feet suddenly sank, giving me the idea that I had been thus shortened by the loss of my legs."

[We were acquainted with an old mechanic who happened to get his arm crushed in the gearing of a mill, and in consequence had it amputated above the elbow. We met him four days afterwards, and asked him how his arm was getting on, "very well," says he, 'but I feel a continual pricking away down at the points of my fingers." The same confusion of ideas has been experienced by others who have had their arms and limbs amputated.

Prescott, our eminent countryman, and Macauley, have been elected Members of the Royal Irish Academy.

Years are the milestones which tell us the distance we have travelled.