Scientific American.

NEW YORK, MAY 16, 1857.

Ocean Steam Navigation.

Twenty years ago, all the trade between America and Europe was carried on with sailing vessels, and the smoke from the funnel of a steamship on the Atlantic was then as great a curiosity as a volcano. Since that period a great change has taken place in the character of our ocean commerce. Then this trade was almost confined to American ships; now steamers engross more than two-fifths of the Atlantic commerce, and they are rapidly increasing in number.

There are no less than thirty steamships now running between New York and different ports in Europe. These are regular steamers carrying passengers and merchandize, beside which there are a number of transient ones, not included, that carry cargo only. But ten of them are American vessels, while the Boston, Portland, and Philadelphia lines are entirely European. The Atlantic trade is departing from us, and unless our shipping merchants exhibit more practical wisdom and enterprise they will ultimately be vanquished in this contest. When we consider that in 1838 the entire carrying, postal and passenger trade between New York and Europe was transacted in American vessels, and that more than one-third of it has already passed into British steamers, it is not difficult to predict what the result will be if this kind of work goes on for twenty years longer.

The whole number of steamships engaged on the routes between Philadelphia, New York, Boston, Portland, Halifax, and Quebec, on this side of the Atlantic, and the ports of Havre, Bremen, Hamburg, Southampton, London, Liverpool and Glasgow on the other side, is fifty-one. Of these only seventeen have paddle wheels, all the others—thirty-four—are screw propellers with iron hulls. Our marine engineers have been very unfortunate in their attempts at constructing ocean propellers, for although several have been built, not a single one belongs to the above large number—all being European. They are the most economical of steamships; their steam power is but small in proportion to their tunnage; they make very regular and quick passages, carry large cargoes, charge but little more for freight than sailing vessels, and merchants prefer them for carrying goods. These are the steamers that are fast "routing out" our sailing craft in the Atlantic trade.

When we look at these facts, we feel this to be a serious matter, and urge our merchants to give it earnest and careful attention. We are confident that wooden ships can be built as cheap here as iron ones in England, and since propellers have proved so successful under the management of European companies, it is our opinion such vessels may be managed with equal success in New York. Will our merchants and nautical men succumb to their rivals in Atlantic ocean commerce, after they have for years been masters of it? If they do, we mistake their spirit. But then they must not slumber long over this matter; it is high time they were actively at work to recover their lost prestige, and regain their lost business. The longer they delay the weaker and less able will they become for the struggle, while their rivals will be "growing stronger and stronger," and increasing in wealth, power and influence.

In connection with this subject, let us point them to an example worthy of their emulation. We have been informed that nearly all (if not all) the foreign steamers of the number stated above were built in Glasgow, and that the majority of them are owned by merchants of that city. These men apparently know what they are about; they are competing with us for the supremacy of the Atlantic trade. They have built ten steamships for every one we have during the past four years, and their success does credit to their ability and energy. Our shipping merchants have a high and honorably won reputation for enterprise—let them look these statements calmly in the face and speak in deeds.

Management of the Flax Crop.

We are satisfied that our farmers have a very imperfect knowledge of flax agriculture; and we are equally satisfied that they *may* raise profitable flax crops. No fabrics are more beautiful than those of fine linen; they are dearer than the finest silks. We have a spool of yarn in our possession made from Belgian flax, and although it is not the finest made, one pound of it will extend forty miles.

No fine flax has yet been raised in the United States, and never will, unless great attention is paid to the culture of it. Some kinds of flax are sold in Belgium as high as $1,000 per tun, while the lower grade of Baltic flax is not worth more than $200. The difference in the price of the two is owing to their cultivation.

From information put into our possession, on the subject by Mr. George Anderson, of Lansingburgh, N. Y., and obtained by him from France, Belgium, Scotland, and Ireland we will present some facts to our farmers for preparing the soil for flax, so that those of them who intend to sow such crops this season may be benefitted thereby.

The best soil for flax is a dry, deep, rich loam, with a clay undersoil. It should be well drained, and plowed deep, using a subsoil plow. It is advisable not to grow flax oftener than once in seven years on the same field; it should follow a crop of oats which has succeeded one of potatoes; or follow wheat or rye, which has succeeded potatoes raised on broken up lea land. If the field is not drained—as is still the case with almost all our farms—the soil should be thrown into ridges, with deep furrows at the sides.

The middle or latter end of May is the best sowing time in the Northern States. After the ground is harrowed twice, it should be gone over with a roller, then dragged again with a harrow having fine, short teeth. The seed may then be sown, not across the ridges, but up and down, then harrowed three times, first up, then across the field, (angleways) then down the ridges, finishing with a light rolling. Generally speaking, our farmers do not pay sufficient attention to harrowing and rolling their fields; indeed, very few of them employ a roller at all. Every farm of one hundred acres should be supplied with three harrows—the angle coarse drag, a square harrow with a somewhat finer and a greater number of teeth than the drag, and a harrow with fine adjustable teeth closely set together.

Plump, heavy, shiny seed alone should be used, and care exercised in its selection.—American flax seed generally produces a coarse branchy stem. Dutch and Riga seed are held to be the best. If farmers wish to cultivate flax for fine fibre it should be sown thick, not less than two bushels to the acre, we believe; if for the seed, they should sow it thin—one bushel to the acre. Thick sown flax grows tall and straight, producing fine fiber, but little seed; thin sown flax grows coarse, and branches out, producing a great quantity of good seed, but coarse fibre.

As this is about the period when our farmers should sow their flax in the northern sections of our country, we present the above views for their consideration at present, and will, at some future period, direct attention to securing the crop and preparing it for market.

Applying the Waste Gases of Furnaces.

On page 180, this Vol., SCIENTIFIC AMERICAN, we described an improvement of Henry Weissenborn, this city, for utilizing the waste gases of blast furnaces, which has been successfully applied at the Eurioka Iron Works, Wyandotte, Mich. In that article we stated that Dr. Nott, of Schenectady, was the first inventor who attempted to save the waste heat of furnaces and apply it usefully.

A correspondent in the *United States Mining Journal*, this city, of March 8th, claimed the invention of Mr. Weissenborn for a Mr. Wilkinson, and stated that it had been in operation for some years in Western Pennsylvania. To these assertions G. Weissenborn returned an answer through the same source, in which he stated his brother had invented the improvement referred to in 1842. Thus far the correction was complete on one point. But this, it seems, has not satisfied all the correspondents of that journal, for another, signing himself "D," impugns our assertion in reference to the venerable Prof. Nott. Writing from Lynchburgh, Va., he says:—"Neither Dr. Nott nor Mr. Weissenborn are entitled to the credit of first using the waste gas of the furnace for the purpose of generating steam in the boilers used to drive machinery. The gas was first used in 1838, at the Catherine Furnace, near Fredericksburg, Va." The editor says: "The letter is from one of the most thorough and practical men of the age; one who well understands the mechanical arts in their fullest extent."

Before any person attempts to correct another he should be sure he is right. Davy Crockett, when he uttered the famous sentence "be sure you're right, then go ahead," gave vent to more practical wisdom than is to be found in whole volumes of some works styled "moral philosophy." The correspondent of the *Mining Journal* forgot Davy's maxim when he penned the above-named letter. Dr. Nott obtained a patent for utilizing the waste heat of furnaces and applying them for various purposes—among the rest, generating steam to drive machinery—on the 29th of June, 1833—five years before the date of such an application in the furnace at Fredericksburg, Va. No invention, so far as we know, dates behind that of the venerable Professor for the saving of such waste heat; and his improvement (which is now public property) is in extensive use, we understand, in Germany and England.

Clay and Iron Gas Retorts.

There are two kinds of retorts—iron and clay—employed in generating gas for illumination. It is a question of no small importance to know which are the best. A paper was recently read on this subject in the Institution of Civil Engineers, London, by J. Church, which contains some useful facts for gasmakers. Iron and clay retorts of the D form, 15 by 13 inches in cross section and 7 feet 6 inches in length, were tested together. The iron retorts lasted 365 days each, working off 1 1-2 cwt. of coal at one charge, and effected the carbonization of 262 tons of coal producing 9,000 cubic feet of gas to the tun. The clay retorts lasted 912 days each, and carbonized 6,665 tuns of coal; they also produced a greater amount of gas from the same weight of coal, owing to their more intense heat, but this gas was lighter, and its illuminating power diminished in proportion. It was found in some cases that the increase in the quantity of gas obtained in clay retorts over iron was not less than 2,000 cubic feet per tun of coal. The author of the paper stated that the cost of clay retorts was only 50 per cent those of iron; they saved 20 per cent. in setting, and they lasted two and a half times longer.

We understand that iron retorts are the kind in common use in most of our gas works, (not all,) therefore it is for their interest to adopt those of clay. It will also be of some service to the gas consuming public to know that while clay retorts are most profitable to gas companies, the gas made from them, "measure for measure," is inferior to that made in iron retorts. With the use of clay retorts, gas companies can afford to reduce the price of gas considerably.

Patterns of Printed Goods.

The styles and patterns of printed goods have their origin in the brains of artists who are employed for the express purpose of designing them in some establishments; there are also numbers of independent artists, who, like literary authors, execute patterns in their own domiciles, and sell them to those who pay the highest prices. In France and England new patterns of printed goods are sold in the same manner as copyrights, and it is thus that new patterns of such goods find their way into the market.

It is painful to persons of a fine taste to witness the miserable designs that are sometimes thrown into market and become fashionable for a time. The leaders of fashion have no choice in their production—they are beyond the compass of their skill—therefore those who produce them must be held responsible for the bad taste displayed. For a few years past the mass of such goods sold in our markets exhibited anything but a correct taste; last year, however, there was a slight improvement on former years, and we are happy to say that the new patterns of the present season display a still greater improvement.

The old *pine leaf*, first introduced from the East Indies, like a good old tune, never fails to please, because it is beautiful in its very nature; it is very prevalent in the new patterns we have noticed.

Iron Castings.

It is surprising how little attention has been paid to the use of cast-iron for fine castings of every description, not even excepting statues, and such like works of art. It is the cheapest of metals, and will stand exposure to the weather for ages with a coating of oil. Why then is it not more employed for such purposes? Why should it not take the place, at least, in a measure, of bronze, which is so expensive? Is it owing to anything in its nature whereby it cannot receive a clear impression from the mould in which it is cast? No. There is no metal superior to it for receiving a good impression from the mould. Cast iron expands in becoming solid, and therefore takes the impression of the mould with exactness. Its point of fusion is 3479° Fah.—a very high temperature—and this is one great objection to its use for casting statues and such works. With care and attention and proper molds, however, we are of opinion that iron castings may be vastly improved, and very fine works of art executed. We are but on the threshold of iron casting as an art. Our iron molders have a boundless field before them for the exercise of taste, skill and genius.

Salt Barrels for Preserving Apples.

We have received a letter from C. W. Cooke, of Waterloo, N. Y., in which a fact of great importance is related in reference to the preservation of apples. He purchased five barrels of choice apples taken from one pile, last autumn, and put them into his cellar. On the 1st of April last, when he came to examine them, those in four of the barrels were mostly all damaged, while those placed in the other barrel were sound—"fresh and good." What was the cause of the preservation of the apples in this barrel? Our correspondent says it was a Syracuse salt barrel, and had contained coarse salt, and he believes this was the cause of their immunity from rot. He, at least, can give no other reason. Neither can we.

Kentucky Mechanics Institute Fair.

The fifth annual exhibition of the above Institute will be held in Louisville commencing on the 18th of August next. Mechanics, manufacturers, and artists from all parts of the Union are invited to exhibit their inventions and manufactures. The past exhibitions of this Institution have been very successful, and were managed with great ability and honorable discrimination, and the next will no doubt be equally excellent. The exhibition committee consists of Geo. Ainslie, W. H. Dulaney and Wm. Kaye, who will make every exertion to aid contributors to display their articles to advantage. Those intending to exhibit at this fair are requested to communicate with the Actuary, D. McPherson, Louisville.

Statue of Washington.

A statue of Washington, sculptured in brown free stone, by the lamented Thom, has been erected in the park in front of our City Hall. The Father of his Country is represented above life size in a civil character, with his left hand resting on a globe, and a scroll in his right. The attitude is not very favorable, but the face expresses calm majesty and profound judgment. The features are not exactly like those represented in the portraits of Washington, but the artist has exhibited a profound acquaintance with physiogomy, for they indicate—according to this science—the highest traits of mental greatness, which is more than can be said of most of the pictures, and any of the other statues we have seen of him.