EDITORIAL CORRESPONDENCE.

TANNING—IRON-SMELTING—SAWMILLS—GLASS-MAKING.

CONSTANTIA, N. Y., May 1, 1860.

The country along the northern shore of Oneida lake is somewhat changed for the better within a score of years, but not as much as it ought to be. One cause of this, we believe, is the bad roads. Were the people in this district to unite heartily and construct a good macadamized road from end to end of this lake—and they have plenty of excellent materials for this purpose—their lands would soon rise in value. Strangers judge favorably or unfavorably of the capacity of a country and the thrift of its people, by the condition of its roads. In saving time and promoting commerce, good common roads are as essential to farmers as railroads are to merchants.

There are extensive tanneries in this section: one at Vienna Corners, another at Cleveland—the old "Eagle" of William Foster, Esq.—and that of the Messrs. Robertson, at Constantia. Excellent leather is made in all of them, but we only had time to visit the latter. At present, the prices of hides are so high, in comparison with those of leather, that a number of tanners have wisely reduced operations. Hemlock bark is the tanning agent that is used here; there are still considerable quantities of it in this vicinity, but within our remembrance, its price has risen from $1.25 to $3 per cord. Messrs. Robertson's tannery is quite extensive—hides to the value of $100,000, original cost, being on hand undergoing the various processes. There is a good water power and wheel at this tannery, but a powerful steam engine is also employed. The furnaces of the boilers are arranged to burn the spent wet bark which is conveyed and fed to them in such a manner as to have its moisture expelled in a great degree before it is ignited. At one period the spent tan bark in tanneries was a nuisance; no use was made of it; now it is a common agent for raising steam and generating power. The hides, after being steeped, softened, sweated, unhaired, and prepared for the tanning operations, are first treated with weak liquors (*handlers*), in which they undergo considerable handling at the beginning of the process, and very little during the succeeding stages. It takes about six months time from the commencement until a hide of good sole leather is tanned. These tedious processes, we believe, will yet be greatly shortened, and with advantage to all tanners. The hemlock bark, after being grated pretty fine, is placed in large square tanks or *leeches*, twelve of which are used in this factory, and these are heated by steam to about 160° Fah., to obtain the tanning liquor. Several liquors are taken from the bark in order to extract all the astringent substance. The only ingredient in hemlock bark capable of forming leather, by combining with the gelatine of the hides, is tannic acid. A small quantity of gallic acid is also extracted, but it exerts no tanning influence whatever. The first liquors in which the hides are handled are comparatively weak, and are made up partly of spent, and partly of new ooze, pumped from the leeches. They contain considerable gallic acid, but it has been held that an excess of such acid was required to *plump* the hides and permit the tanning to reach the interior. This may be so, but we have a different opinion. We believe that spent liquors should all be run off, and never used over again. The reason we advance for this is, that when there is an excess of gallic acid in any liquor, it converts the tannic acid into gallic, and thus a great quantity of the tanning principle is destroyed, thereby entailing loss of material and requiring longer time and more bark to tan the hides. Weak and fresh liquors should be used at first; the liquors should be gradually raised in the usual manner to the end of the process, and more handling than usual should be employed. Such a system, we believe, would greatly shorten the process; all chemists are agreed as to the convertibility of tannin into gallic acid by long exposure, and its utter destruction, thereby, as a tanning substance. Some of the best sole leather we ever examined is made at this factory, and it has a high character in the "Swamp," at New York.

In this place there was, formerly, an iron-smelting furnace. The ore employed was the brown hematite of Oneida county—the fuel, wood and charcoal. The ore contained about 66 per cent of metal, to which about 11 per cent of limestone was added as a flux. The pig iron produced was of excellent quality, but the hearth of Vulcan is now cold, and his bellows have ceased to blow. The site here selected was once favorable, when hard wood was almost valueless, but since it has become dear, the expense of importing the ore from a distance of about 40 miles will not pay.

A great quantity of pine and hemlock lumber is still manufactured here from the native forests. There are a few turbine wheels running, but the great majority are overshots. At Judson's mill, on Constantia creek, a set of gang saws are in operation; the water power is excellent and capable of driving a great amount of machinery. Gang saws make very superior boards; all the other mills employ single long saws; no circular saws were seen.

A short distance from the lake, and extending along its whole length, there is a ridge of beautiful cream-colored sand, which was accidentally discovered, several years ago, to be excellent for making window glass. Three large glass factories have been erected—two at Cleveland, and the third three miles further west. The two former we have visited and witnessed the almost nude "salamander" operatives blowing glass cylinders for our windows, through their long iron trumpets. We learned a peculiar fact in relation to glass-smelting being so dependent on clay for success. The large pots or crucibles in which the crude glass materials are melted in the furnace are principally composed of German fire-clay. It seems that most of that which was imported last year was of an inferior quality; hence many of these pots have broken in the furnace, thus entailing a great loss of materials and, in some cases, occasionally stopping entire factories during the winter. As a consequence there is much less glass on hand, at present, in New York. The substances used in glass-making are sand, some lime and carbonate of soda; the sand is perfectly infusible without the admixture of the alkaline substances. At the factory of Landgraff & Sons, at Cleveland, there had been no suspension of operations; none of their smelting pots had failed in the furnace, because the senior proprietor is an old and very skillful German glass-maker, well acquainted with mixing the crucible clay. The glass made in this section is of good quality. It is first blown into cylinders; these are then split through the middle, by drawing a red-hot rod along the side of each, when cold; after this they are introduced into a highly-heated oven and placed on a revolving iron bed, when they open like leaves and are flattened like sheets of paper, by the attendant operative. The operations of glass-blowing involve great manual dexterity and powers of endurance. The operatives make high wages, and they deserve them; those who blow the largest sheets are paid in proportion. The prices of glass, as quoted in our city papers, are always accompanied with "discount, 50 per cent." The customs prevailing in regard to the selling of it differ from those of other manufactured articles, in this respect.

AMERICAN NAVAL ARCHITECTURE.

THE STEAMER "MAIZE."

The *Maize* is one of a number of medium-sized steam vessels now being built in this country for a company of Spanish gentlemen in Havana, Cuba. Her hull was built by Messrs. C. H. & Wm. M. Cramp; her machinery by the well-known manufacturers, Messrs. Reaney, Neafie & Co., of Philadelphia, Pa. We herewith subjoin particulars relative to her construction:—Length from fore-part of stem to after-part of stem post, above the spar deck, 184 feet 6 inches; breadth of beam (molded) at midship section above the main wales, 30 feet 4 inches; depth of hold, 12 feet; draft of water at load-line, 9 feet 6 inches. Her frame is of white oak, cedar, and locust, and securely square fastened with tree-nails, spikes, bolts, &c., and diagonally strapped with iron inside ceiling, the knees forming straps. The floors are molded 13 inches, sided, 8 inches, and finished with angle iron. Frames are 28 inches apart at centers.

This steamer is fitted with one vertical crosshead condensing engine; number of cylinders, 2; diameters of same, 40 inches; length of stroke of piston, 36 inches; diameter of propeller, 9 feet 4 inches; material of same, brass; number of blades, 4; width of same, 5 feet, and they have a pitch of 18 inches. She has two flue and return tubular boilers, located in hold; has no water bottom; does not use blowers to furnaces; has one smoke-pipe, two bilge pumps, one fire pump, two bilge injections, and bottom valves or cocks to all openings in her bottom.

The maximum pressure of steam is 20 pounds, with variable cut-off. Revolutions at above pressure, 34, and draft of water of 9 feet 6 inches. Ample protection has been made with iron, felt, and other materials against communication of fire from boilers. Her bunkers are of wood; she has three watertight athwartship bulkheads and three anchors.

The cabins are nicely furnished, and afford good accommodations for passengers. Her intended route is on the line of the San Pelaya Company, of Cuba.

The tunnage of this steamer is 600 tuns.

THE STEAMER "PHILADELPHIA."

The *Philadelphia* was built by Reaney, Neafie & Co., of Philadelphia, and placed on the route of her intended service (Washington to Aquia Creek) at the commencement of this year. As she has at all times more than exceeded the anticipations of her builders, we annex the particulars of her hull and machinery:—Length on deck, from fore-part of stem to after-part of stern post, above the spar deck, 215 feet; breadth of beam (molded) at midship section, above the main wales, 29 feet 6 inches; depth of hold, 9 feet; draft of water at load line, 5 feet 6 inches; diameter of water-wheels, 29 feet: material of same, cast iron. Her frame is of wrought iron plates, ½ to ⅜ of an inch in thickness, and securely fastened with rivets at proper distances. The floor timbers at throats are molded, 4½ inches; sided ⅞ of an inch, and are shaped ⟍. The distance of frames apart at centers is 16 inches. Has 4 long keelsons, 20 inches deep by 12 inches.

This steamer is fitted with one vertical beam condensing engine; diameter of cylinder, 44 inches; stroke of piston, 11 feet. She has one return tubular boiler, located in hold; does not use blowers, and has no water bottom; one smoke-pipe; one independent steam, fire and bilge pump; one bilge injection, and bottom valves or cocks to all openings in her bottom. Ample protection with sheet iron and felt has been made against fire communicating from the boiler to the surrounding woodwork.

Her saloon cabin is finely fitted-up, and affords pleasant accomodations to passengers; she has a promenade deck, and is supplied with water-wheel guards, fore and aft. She is owned by the Seaboard and Roanoke Railroad Company.

The tunnage of this steamer is 550 tuns.

CURIOUS PRODUCTION OF INTENSE HEAT.—Much amusement has on many occasions been produced among the juveniles, by handing them each a small fragment of amorphous antimony, with a request to hold it very firmly between the thumb and finger of the left hand, and then rub it very hard with the edge of a file—such as is found on nail-scissors will do; it then instantly evolves so much heat as almost to burn the skin; the sharp but harmless pain causes much fun to the lookers-on, by the violent motion to get rid of it. Amorphous antimony was discovered by Mr. Gore, of Birmingham, England, and the following is his method of making it:—Take two parts of hydro-chloric acid, and after adding as much oxyd of antimony as it will dissolve, add one more part of acid. Then pass a current of electricity from a galvanic battery through the solution by means of an anode of antimony and a cathode of copper in the form of a thin sheet; continue the action for two or three days, until the antimony is deposited sufficiently thick on the copper; then remove it from the copper by bending the sheet under water, and it will fall off in flakes. Dry it carefully, and preserve it in cotton wool for future experiment.—*Septimus Piesse.*

LINSEED OIL STATISTICS.—The *Commercial Bulletin*, of Boston (which is, by-the-way, an excellent journal), raves like a town-crier in regard to the statistics which we gave on page 201, respecting the quantity of linseed oil imported. Our information was drawn from a source which might be considered reliable, viz: the *American Almanac* for 1860, published in Boston. Our object in writing upon the subject was to stir up our own manufacturers to more interest in the matter; and if, in calling attention to the subject for this purpose, we relied too much upon published statistics, it certainly is not a very grave matter, or one that need to disturb our cotemporary's equanimity.