(For the Scientific American.)
Madder and Indigo.

I have noticed that you have endeavored to direct the attention of our cultivators to the raising of madder and of indigo.

MADDER, to afford a beautiful and permanent tint, must be raised in a soil containing a large portion of calcareous earth, the more the better. The Dutch madder does not afford so beautiful a color, nor is it as permanent as that raised at Avignon, in France. The soil on which the latter grows contains fifty-six per cent. of fine limestone, the former not more than ten per cent. Madder raised in the non-calcareous soil of Alsace, gives a color of no permanency or beauty; but when raised in soil containing more than ninety per cent. of lime earth, the roots give faster and more beautiful dyes than that of Avignon.

The natural soils of Kentucky and Illinois would produce madder of very superior quality. About the year 1817, when in Kentucky, I used some madder raised in their gardens, and it proved to be of excellent quality. It requires three years to bring madder to perfection, and I am afraid this will prevent our cultivators from growing it, as few of them would be willing to wait that time for returns. They might, however, plant beds every year, and after the first three years have annual crops.

Madder is raised in narrow beds, about four feet wide, for the convenience of keeping it free of weeds—an operation necessary to the perfection of the roots. In Kentucky they let the shoots grow to about one foot high, when they lay them down and cover them with soil, and these form new roots. This may be repeated two or three times in their summer season. Those laid down the first year make good roots for consumption when dug at the end of the third season. They leave a good space between each bed to afford soil for covering the shoots. At the final digging, roots of the size of a goose quill are laid by for grinding, and the smaller ones are transplanted.

To prepare madder for market, it is necessary to stove-dry the roots and grind them, and these operations require considerable outlay, and experienced operators. In grinding, the outside cuticle is first taken off, and this forms what is known in the market as "mull-madder," which is only used in dyeing blacks, bottle-greens, and dark browns. The next layer taken off is known as "gamene," and is used for a great variety of common colors. The third is known as "ombre," and the fourth as crop or "grappe." Either of the last may be used for red dyes; but the crop gives the most beautiful color.

Madder roots are imported from Smyrna to England, called Palestine madder, which are ground in London.

There are two colors extracted from madder, when boiled, a red and a dingy yellow; but when the red alone is required the liquor must be kept below a boiling heat.

INDIGO.—Indigo is an annual crop; it is cut when at maturity, placed in a steeper, then covered with soft water, and stones placed on the plant to keep it under the water. It remains steeping until the liquor becomes of a greenish yellow, with a copper colored scum round the outside. The liquor is then drawn into a receiver, and the workmen beat it with long poles to oxydize the green faecula, which will then precipitate as blue indigo.

About the latter end of the year 1799, or the beginning of 1800, I owned a large dyeing establishment in the west of England, consuming about four hundred pounds of indigo per week. At the date above mentioned I went to London to lay in a stock for the blue vats; among the lots offered were two chests made in South Carolina, on the Peedee river, by the late General Wade Hampton. On examining them I found it of a deep rich copper color, clean and smooth in the fracture, and as it was offered at one shilling per pound cheaper than Bengal of similar quality, I bought them with several of the latter; and as I expected, the quantity of coloring matter extracted from the South Carolina, was greater by at least ten per cent. than from the Bengal.

I emigrated to this country in the year 1808, and the following year I wrote to Gen. Wade Hampton to know if he continued to make indigo and to inform him of the superiority of the two chests I had used. In his answer he informed me that he had given up the making of indigo, because cotton planting paid better, and that indigo making so injured the health of his slaves that some of them never recovered their previous strength. The injury he complained of is produced during the beating process; for so rapid is the absorption of oxygen gas from the atmosphere, during the operation, that those who stand over it must be breathing an air with its vital principle so diminished as to render it unfit to sustain animal life. This difficulty might be easily obviated by letting the liquor from the steep run into a receiver, shorter and narrower than the lower one, with a cullender bottom made of zinc, and through it dripping into the lower one called the beater. It would require three or four feet between the two. I believe, by this process, the green faecula would be more completely oxydized, and a better quality of indigo produced than by beating.

Those who prefer the old process could restore the strength of their slaves by the following simple operation:—let them procure a twelve gallon graded gasometer, and convey into it for every three gallons of atmospheric air one gallon of oxygen gas; by breathing this increased vital fluid a few times, the whole of the carbon that had increased in the blood from breathing a non-vital gas, would pass off, and strength be restored.

WM. PARTRIDGE.

Binghamton, N. Y., 1853.

[We hope our agriculturists and planters will give the above communication a faithful consideration. The Bengal indigo monopolizes our market, as the first quality.—[ED.

(For the Scientific American.)
The New Steamboat Law—Its Success in the West.

In the "Scientific American," of the 6th inst., R. G., complains of neglect of duty of the Steamboat Inspectors of New York in not inspecting ferry-boats, &c. If the writer had read the new Steamboat Law with any attention, he would have seen that by the 42nd section it is provided "that this act shall not apply to vessels of the United States, nor to vessels of other countries, nor to steamers used as ferry-boats, tugging boats, or vessels under 150 tons, navigating canals." In your remarks you seem to have fallen into the same error. My object is to correct you, and at the same time to say these vessels should undoubtedly have been subjected to the law, for there is as much danger to life upon ferry-boats and canal passenger boats as upon any other class whatever.

I was in Washington at the time of the passage of the law, and although it was the desire of the framers of the bill to include these vessels, yet it was considered impossible to get it through the House, and even extremely doubtful if any bill would pass owing to the great opposition of Mr. Vanderbilt and others, and they were forced to take the law in its present shape rather than none. At this session of Congress, however, these vessels by all means should be included in the law, and it is hoped they will not be passed over.

I feel some little pride in alluding to the success of the new law, and having devoted considerable time and attention in its passage, and as I thought had been somewhat instrumental in spreading correct information before the public, as to the cause of explosions and the proper remedies to prevent them, I cannot but look back with pride at the good results upon its provisions.

If you will look at the facts in the case, taking for example the Mississippi River and all its tributaries, I believe you will find that from the 1st of January, when the law took effect, to this time, there has not been the loss of life of a single passenger, or even an injury to one, upon all these waters, whilst in the seven months of 1852, corresponding to these, there were over 500 persons killed. Taking the explosions and accidents elsewhere in the United States for the same period, they scarcely amount to anything in comparison with the loss before. With the exception of the explosion in California and Texas, I am not aware of but one instance in our whole territory where passengers have lost their lives.

The great cause of complaint, it seems to me, is the making this law a matter of politics. As I ever understood it, this was a law demanded by the necessities of the occasion and for the benefit of the whole American people; it was for the security of life, not for the aggrandisement of party. I do not believe there was, during the passage of the bill through Congress, one single voice in favor of ever making this a political question, in fact, Whigs, Democrats, and all others, were united on this question, and publicly and privately disavowed any intention of the kind. The late President acted upon this principle in the appointment of Supervising Inspectors, yet the "powers that be" have already removed some of the most deserving and filled their places with those who have no kind of knowledge of the business over which they are to exert such an important influence. In the 8th and 9th Districts neither of the Supervising Inspectors, it is said, can go on board of a steamer and stop the engines to save their lives.

AN ENGINEER.

To the Manufacturers of Hoes.

The hoes which have been in general use for a number of years, for chopping out and working bottom lands, are the kind known by the name of "patent hoe." This hoe has a steel blade with the eye rivetted on to it. Before it can be used, however, for the purpose stated, it is heated and bent down, so that the blade describes a curve, and is not set at right angles (as when bought) to the handle. This setting, almost invariably loosens the rivets of the eye, and therefore injures the hoe. In consequence of this an inferior hoe is coming into use and has the preference? Could not these patent hoes be bent to the proper angle by the manufacturer? I have never seen a new one properly made. I hope this will attract the attention of those most interested in the making of them. J.

Powelton, Ga.

[There are some beautiful hoes on exhibition at the "Crystal Palace." The manufacturers of such hoes, if they possess the proper mechanical skill, can make them of the proper shape for the purpose spoken of by our correspondent: there is no mechanical difficulty to prevent them.—ED.

Recent Foreign Inventions.

DYEING.—Louis J. J. Malegue, of Paris, patentee.—The inventor prepares his coloring composition for dyeing rose color thus:—Four ounces of ammoniacal cochineal are dissolved in a quart of hot water and boiled for ten minutes, after which 88 grains of salt of tin, 140 grains of crystals of tartar or bitartrate of potash, 1 oz. of saturated aqueous solution of sulphurous acid, and 140 grains of the solution of tin are added; the whole is then boiled for about half an hour and then allowed to cool in a glass or earthenware vessel, and afterwards decanted into another vessel. Two ounces of the carmine of safranum are then added, and well mixed with the solution. A small quantity of this composition is then mixed with a quantity of hot water, and tartaric acid is added in the proportion of about 1 oz. to 8 or 10 gallons of water, and then an additional quantity of the dye added sufficient to produce the required rose-tint.

The solution of tin above mentioned is formed by dissolving 9 parts, by weight, of pure tin in 5 parts of nitric acid and 18 parts of muriatic acid.

The ammoniacal cochineal is produced by boiling finely ground cochineal in twice its weight of solution of ammonia for several hours. The mixture should be well stirred, and when it becomes thick it should be placed upon a cloth stretched on a piece of wicker work and dried in a stove, and then cut or broken into pieces.

The salt of tin is prepared by dissolving pure tin filings or grains in muriatic acid, to which has been added one-fifth part of its weight of nitric acid, and then evaporating the solution in a water-bath till the solid salt is obtained.

For dyeing purple the process is the same, with the exception that 350 grains of solution of tin are employed instead of 140, and 1½ oz. of carmine of safranum instead of 2 ozs.

BALLOONS.—J. H. Johnson, London.—The apparatus specified under this patent consists of a balloon of an elongated form, from which is suspended a platform or frame to carry the propelling, directing, and governing machinery, and the aeronauts. There are four wheels fixed at the extremity of two transverse parallel shafts, set in motion by a small steam engine, which, with its boiler, is placed in any convenient part of the frame, and a number of wings extending from the shafts of these wheels, for the purpose of counteracting the effect of the air against the balloon; on each side of the platform is an apparatus similar to an umbrella or parachute, which, by alternately opening and closing, exerts a propelling power. A series of horizontal wings, form a means of regulating the ascent and descent of the balloon, and sliding weights are used, by which the centre of gravity of the whole can be changed, and its angle of inclination determined. The balloon is furnished with a rudder similar to that of a ship, by which its course through the air may be governed.

The Leviathan Steamship.

Mr. Betts, the great railway contractor, who has just left for Montreal, is a Director in the Eastern Navigation Company, who are constructing the Leviathan Steamship, for the purpose of facilitating ocean navigation. The other head of this company is the Earl of Yarborough, and the names of Mr. Peto and others of equal note, are also associated with Mr. Betts in the direction. This Company has laid the scheme for a monster steamer, whose dimensions are given as follows:—Length 673 feet; breadth 80 feet; out to out of wheel-houses 120 feet; depth of hold from combinings of main deck 60 feet; power of engines 6,000 horse. Her decks present an area of 1½ acres of surface. The ship is being built by Scott Russell, Esq., the greatest naval architect of England, and is constructed in separate compartments, made water-tight, so that in case of her bow or stern breaking off, she would still be able to float in separate pieces. It is doubtful if such a steamer could enter our harbor, and Halifax is therefore regarded as the most suitable port for this new move in ocean navigation. Thissteamer is to sail from Milford Haven, where she is now building—or from Holyhead Harbor, which promises eventually to become the great steamship terminus of the British Isle.——[London paper.

[So it seems this great steamer is actually *being* built. Well, we would like to see it, the experiment is certainly a magnificent one. In connection with the above, we learn by the "Montreal Herald," that Robert Stephenson, the celebrated engineer who built the Britannia Tubular Bridge, is now in Montreal to build a tubular bridge over the St. Lawrence.

Sea Sickness.

A writer in the "London Times" says:—"Having noticed in the public journals a recent instance of death from sea sickness, under very painful circumstances, I am induced to hope that the mention of a remedy which was entirely successful in a case which came under my own observation may be useful to other sufferers from the distressing malady.—A lady of my acquaintance was landed at the Cape of Good Hope on her voyage home from India, in such a deplorable state of debility and exhaustion from sea sickness that she was obliged to be carried into the house by men, and would certainly have died if the ship had been a week longer at sea. The danger of renewing the voyage under such circumstances was very great, but a simple contrivance enabled her to continue it, and to reach England in perfect health. A swinging cot was constructed with a top or frame over it, fitted with curtains so as effectually to screen the deck overhead, and other parts of the vessel, from the view of the recumbent invalid.—The motion of the ship was thus rendered imperceptible, and the invalid being relieved from the dizzying effect of the vessel appearing to roll one way and the cot the other, no longer felt any nausea or inconvenience. She soon gained sufficient strength to leave her cot for short periods, except in bad weather, and the confinement, such as it was, was a trifle compared to that which persons who have lost or dislocated limbs, are compelled to endure pain for months. At all events life was saved, and health restored by this simple means."