Attempted Launch of the Great Eastern.

On the morning of the 3d inst., an attempt was made to launch this colossal steamship into the river Thames, London. It was the first and only trial, and the effort to move her beyond a few feet totally failed, and the gigantic vessel, which ere this should have been a "monster of the deep," remains as firm, if not firmer, than ever upon the river's bank. For another month, at least, if not for a longer period, the launch has been postponed, and the 2d of December has been fixed as the earliest period on which the next effort can be made.

During the whole of Monday night the workmen were retained in the yard removing the struts and shores which supported her on the side towards the river, and before dawn on the morning of the 3d, the last beam had been entirely taken away. Then, for the first time, the whole length of the vessel, from stem to stern, was visible without the slightest break. The graceful sweep of her lines, the clear sharp run of the bows and sweep of the stern could be appreciated at a glance. The last supports were not removed until every precaution had been taken to ascertain that she was securely stayed by her check tackle, and that there was no fear of her suddenly gliding down the "ways" and launching herself.

Four large lighters were moored in the tideway, and worked with crabs and sheaves upon the chains, which were fastened to the vessel amidships. Each of these four lighters was capable of applying a strain of sixty tuns, all of which was to be used to draw the vessel down the launching ways in case of any *contretemps* which might prevent her running. Two lighters were also moored at the stem and two at the stern of the vessel. The chains passing from the ship to these latter were returned again on shore, so as to be worked with a double purchase. Small stationary engines on land were used to haul in these, and made the whole force available to pull the vessel off the shore upwards of 600 tuns.

These were the means taken to draw her down to the water, but the greatest efforts of Mr. Brunel were, of course, concentrated in the check tackle which was to pull her back, and prevent her dashing into the river at the fearful momentum of 12,000 tuns weight, sliding down an inclined plane of 1 in 12. For this purpose two most powerful drums had been constructed, to which the cradles were attached by enormous sheaves or pulleys of cast iron, expressly cast for this purpose, and weighing five tuns' each. One sheave was fastened to each cradle, and wrought iron chain cables of the largest size connected these with two other sheaves, each of which was secured to the drum, which paid out the chain, and, in fact, regulated the whole operation. These drums and the framework on which they rest having to bear the strain of the whole mass in motion, extraordinary precautions were taken to render them as massive as they could be made by any known combination of wood and iron. The shape was that of an ordinary reel, the axle of which was formed by beams of timber and strips of wrought iron bound together so as to form a drum about twenty feet long and nine feet in diameter. At each end of the cylinder are the wheels of the drum or disks, sixteen feet in diameter, each of solid iron, and weighing upwards of twenty tuns, so that the weight of each drum is more than sixty tuns in all. The axle of the disk is set in a frame of iron, while around its upper edge passes a band of wrought iron to work in the manner of a friction clutch or break. This, with the aid of strong iron levers 20 feet long, brings such a pressure to bear upon the disks of the drum as to lower its rate of revolution, or entirely stop them in case of the chain being paid out too fast. These drums are set in a solid bed of wood formed by driving down masses of piles into the gravel, so as to form a mass of timber twenty feet square. This is bound together with iron, and strong shores pass from the cube of piles to the bed of the piles on which the launching-ways are built. So that, in fact, no matter what the strain, it is impossible for the setting of the drums to give, unless the whole river's bank gives way with them. One of these drums is built opposite each cradle—the chains used between them and the cradles are the chain cables of the great ship itself, which are 2⅝ inch in diameter, or about sixty pounds the link. Between each drum and the cradle on which the vessel rested, a hydraulic ram is fixed to "start" her. That at the forward end gives a pressure of 600 tuns, the one at the stern 1,000.

The launch was fixed to commence at 11 o'clock, but things were not arranged for the moving of the monster when that time came. Gangs of men were employed in hauling chains, in clearing away the slightest obstacle upon the ways, and giving the metals the final coating down of black lead and oil. Mr. Brunel's position was high up in a little rostrum fixed on the inner side of the vessel. From this point he was to regulate the advance of stem and stern by signals, which were communicated to the gangs of workmen, both to pull her off and hold her back, by means of flags—a white flag being the signal to haul together, and a red one to cease on all points.

At the signals, the lighters slowly but steadily commenced to haul taut their tackle from the river, which, it was thought, would of itself be sufficient to bring the vessel gently down. It appeared, however, to have no effect beyond once or twice producing in the vessel itself a sullen, rumbling noise like distant thunder as the great strain told upon her hull. It remained thus for about ten minutes. Expectation was wound up to the highest pitch, when the peculiar hissing noise of the hydraulic rams at work to push her off was heard. We should have mentioned that each of the drums was constructed so as to be turned by ordinary windlasses, in order to wind up the slack chain between the drums and the cradles, otherwise if any slack was left when the hydraulic rams started the vessel, it would run it rapidly out, and Heaven only knows the consequences that might ensue. When the "rams" began to work, the order was distinctly given to "wind up," meaning to coil in this slack between the drum and the cradle. This was accordingly done at the forward drum, but, unfortunately, at the stern of the vessel the men did precisely the reverse, and uncoiled more slack chain. Suddenly, there was a cry of "She moves, she moves!" the fore part of the vessel slipped, and the stern rushed down rapidly. It seemed to slip some three or four feet in the space of a couple of seconds, in consequence of the slack chain from the after drum offering not the slightest check. In an instant the strain came upon the drum, which was dragged round, and, of course, as that was connected with the windlass by multiplying wheels, the latter turned some ten or fifteen times for every foot the drum moved. The men at the windlass madly tried to hold it, but the heavy iron handle flew round like lightning, striking them and hurling five or six high into the air as if they had been blown up by some powerful explosion. A panic seemed to spread as this shocking accident took place, and the men stationed at the tackle and fall of the level next the windlass rushed away. Fortunately, most fortunately, for the lives of hundreds of the spectators, the men at the lever at the other side of the drum stood firm, and hauling on their tackle drew their lever up and applied the break on the drum with such terrific force that the ship instantly stopped, though she seemed to quiver under the sudden check as if she had received a heavy blow, and the check tackle and massive pile of timber which controlled the drums strained audibly.

The whole of this took place in the course of two or three seconds. The vessel dropped, the men were hurled from the windlass, and with a heavy rumbling noise, the tremendous structure was still on the "ways" again, almost before the spectator had time to imagine what had occurred.

This melancholy occurrence seemed to exercise a most depressing effect, especially upon the workmen, though the tremendous strain to which the drum was exposed, and which even with the friction of only one break proved sufficient to check the vessel with a great and unexpected momentum on her, shewed that the check tackle was all that could be desired. An examination of the place where the accident occurred showed that the toothed wheels of the windlass (which seemed totally insufficient in multiplying power to enable the men to exercise any check upon the revolution of the drum,) were broken, and appeared so out of gear that they were almost useless. Beyond this damage, which was of not the least importance, the rest of the apparatus of the drum and framework was as firm as ever. The vessel it was found had slipped down the ways about three feet at the forward drum and four feet three inches at the one fixed aft. The stern had progressed, of course, about six feet towards the river.

Later in the day another attempt was made to carry the "Great Leviathan" into the destined element, but without success. As all further attempts toward launching have been definitely postponed till the 2d of December, it is not impossible that the fears as to her settling down in the "ways" may be realized before that time arrives. With a weight of some 12,000 tons resting upon new made earth, the safety of the vessel may become at any time a question of considerable doubt.—*London Times.*

The Sorghum Sugar Question.

On page 411, Vol. XII., of the SCIENTIFIC AMERICAN, and in subsequent numbers, we expressed our opinion that crystallizable sugar was not obtainable from the Sorgho cane. We did so, having the authority of eminent chemists and practical refiners to support our opinion; and as far as they had examined, they were right. But neither they nor we had gone quite far enough, for we have received a sample of beautiful crystallized sugar, prepared by Mayland Cuthbert, of Philadelphia, also some samples of the same from E. G. Ward, of New Bedford, Mass., equally good. We carefully examined them and were at a loss to account for it. Has the great problem of converting syrup into sugar been solved? thought we; it cannot have been. We were in an inexplicable difficulty concerning this phenomenon until we saw a communication in the *Prairie Farmer*, from Dr. Ostrander, of Lexington, Ill., whose experiments, if confirmed by subsequent investigations, seem to solve the difficulty. He says:—

"I purchased a sugar (crushing) mill of two iron rollers, 5½ inches in diameter, and 14 inches long, and had new gear wheels cast, both of a size, to give equal motion to the rollers. I commenced grinding and boiling, and soon found that six gallons of juice would make one gallon of superior syrup. I then built a mill with wooden rollers, 18 inches in diameter, and went at it in good earnest, and found that it now took eight gallons of juice for one of syrup. Upon investigating the cause, *I found there were two juices distinct from each other in the cane, viz.: a crystallizable and an uncrystallizable saccharine juice.* The iron rollers expressed both, the wooden rollers only one. The juice run from the iron rollers granulated easily, while the juice from the wooden rollers could scarcely be said to grain. My cane was twice frozen solid before it was worked or cut."

The above announcement will stimulate additional researches into the nature of the Sorgho plant, and we shall hope to see Dr. Ostrander's position carefully tested. If found to be correct its future value for sugar-making will become a question of importance in an economical point of view.

FRENCH SILK MANUFACTURE—The production of cocoons in France has been diminished from about 58,500,000 pounds in 1853, to about 15,750,000 in 1856. The aggregate production of silk in the world is estimated at a value of $200,000,000.

Improved Method of Bleaching Straw Hats.

This method is described as far surpassing, in efficiency and beauty of result, any other known process. The soap is brushed off clean with a delicate brush. The hats, while yet wet, are immersed in a bath, prepared of three-fourths of an ounce of sulphite of hydrosulphite of soda, and four to six pounds of water, and are freely handled and pressed, to promote the soaking in of the lye through the interstices of the plaits. No harm is to be apprehended from this manipulation, as the previous washing has rendered the straw pliable, and without danger of fracture. The hats are then removed from the lye, and three-fourths of an ounce of muriatic acid of commerce being added and well stirred into this lye, the hats are quickly replunged in it. To secure a uniform action of the acid upon the lye which is in the hats, particular care must be taken that the hats be submerged at once, and kept in this situation. In order to prevent the escape of the liberated sulphurous acid gas, the vessel employed is, after the second immersion kept closed, until the operation be completed; this takes place in about thirty minutes, more or less, according to the darkness of the straws. When sufficiently acted on by the gas, the hats are removed, washed clean in pure water, dried, and finished as usual.

Genius and Labor.

There are a great many well-meaning persons who are horrified at any innovation upon the established order of things. They are vexed with even the slightest efforts to introduce new customs or new improvements. If some ingenious inventor proposes to invent a sewing machine or a wood planer, they cry out that genius thus exercised is against the interests of labor. The experience of the world is, however, against the croaking of such philosophers. Every labor-saving machine lends not only dignity to labor, but it also increases the demand for the articles manufactured by it. The history of every manual labor-saving machine is emphatic on this point.

Tears.

How many associations of joy and sorrow are conjured up by that one word, but we are not going to be sentimental, so we shall stick to the science of them. They are a peculiar limpid fluid secreted by the lacrymal or crying glands, and are intended to preserve the transparency of the cornea of the eye by keeping it moist, and removing foreign substances. In man the passions excite their flow, but it is questionable if they are so caused in the lower animals. Their specific gravity is somewhat greater than that of water, and they contain common salt and free soda, they change vegetable blues to green, in one hundred parts there are only four of solid matter, one of which is salt, the rest being mucus, which separates in flakes when alcohol is poured on them.

Mosquito Tobacco.

Mosquito tobacco is used in China for protection from what is to us a great summer pest. The ingredients are pine and juniper sawings, wormwood leaves, and tobacco leaves reduced to powder, a small portion of *un-wang* and arsenic. The quantity of the latter is exceedingly small, and can hardly be injurious to health, as this tobacco is used by probably one hundred million human beings. The odor is not at all disagreeable. It is no luxury to the mosquitos, for in two or three minutes after it is ignited, not a bug or mosquito is to be seen.

Acknowledgment.

We are indebted to C. F. Loosey, Esq., Austrian Consul-General, residing in this city, for files of the *Journal of the Society of Austrian Engineers.* The government of Austria has already experienced the benefits which result from the careful attention given to the progress of mechanical science by its New York Consul-General.