

## RELIABLE HISTORY OF STEAM NAVIGATION.

Our able cotemporary, *The Commercial Bulletin*, is publishing a series of articles on the "History of Steam Navigation," and, in doing so, quotes in conjunction with much reliable information, the case of Blasco de Garay as being among, if not the very first of the inventors of the steamboat. We are well aware that it is claimed for the Spaniard that he invented a steamboat in 1543, and that he experimented with it in the port of Barcelona, and this assertion has been set forth as a matter of reliable history by several authors. It is a singular fact, that this claim was never heard of before 1822, long after steamboats had become quite common in America and England, and it is no less singular that the authenticity of such claims should have been admitted by any author. A few years ago, as published on page 83, Vol. XIV, SCIENTIFIC AMERICAN, these claims were proved to be founded on spurious data, by Mr. John McGregor, of London, who went to Spain and examined the national archives at Simancos, where the record of Garay's experiments were stated to be kept. He found two letters written by Blasco on the subject of propelling boats, but instead of propelling them by steam, they only gave the particulars of moving vessels in the port of Barcelona, by large paddle wheels turned by 40 men. Mr. McGregor says: "After careful and minute investigations at Simancos, Madrid and Barcelona, I cannot find one particle of reliable evidence for the assertion that Blasco de Garay used a steam-engine for marine propulsion." It is high time that this mythical steamboat of the sixteenth century ceased to occupy a place in history. We refer our cotemporary to Mr. McGregor's notes (published as above stated) which are the result of profound research.

## STEAM—ITS HEAT AND PRESSURE.

MESSRS. EDITORS:—On page 133 of the present volume of the SCIENTIFIC AMERICAN, under the head of "Explosions in Steam Boilers," an extract of Mr. Hyatt's paper, read before the Association for the Advancement of Science, is given, and in which it is stated that steam at 868° Fah. is equal to 960 lbs. pressure on the square inch. It is a dangerous practice for any one to put down things which he knows nothing about in the same category with those which he probably understands. Such steam as Mr. Hyatt speaks of is entirely unknown; but supposing it really did exist under the circumstances stated, I find that one cubic foot of water will produce but 49.39 cubic feet of such steam.

The total power in steam increases uniformly from a suppositious zero—272.48° C. for every degree—and is equivalent to lifting one pound 154.402036 feet in height. This makes the total power in the above steam equal to lifting one pound 113,794 feet, which being divided by 2.4 times the pressure in lbs. per square inch, gives the number of volumes of the steam as compared with the water it contains at the boiling point.

This is a very curious result, of the correctness of which any one may satisfy himself by multiplying the pounds pressure per square inch by the number of volumes into which water expands to become steam, when it will be found that the products, divided by the number of degrees, will always give the same dividend. The ordinary tables are not sufficiently accurate to give identical results, but if you take Regnault's tables you will have identical results from zero to 230° C. (456° Fah.) and 404.447 lbs. per square inch, which is quite as far, I believe, as we are justified in going in our statement about the temperature and pressure of steam, that being about the extent of our knowledge on the subject. That the total power in steam should be equal to the products of the pressure arising from expansion of the water in becoming steam is not surprising, but that the increment should be equal for every degree might not have been expected, when we consider how unequal the elements of calculation are. I believe this to be my own discovery; I made it several years ago.

I think there must be some mistake in reporting Professor Henry's remarks. He could hardly have asserted that the sum of the latent and sensible heat of steam in the same in all cases, or that Dalton discovered it. This law is known as the law of Watt, which the researchers of Regnault prove to be incorrect. At 32° Fah. the total heat in vapor is 1,092° Fah.; at 212° Fah. it is 1,147° Fah.; and at 446° Fah. 1,218° Fah. High pressure steam is not, therefore, "just low pressure

steam compressed, as you have stated, and which I hope you will correct, as you are doubtless anxious to give reliable information to the people. T. P.

[We are perfectly well conversant with the fact that the tables of Regnault do give more combined heat in high than low pressure steam, but the difference is so small that we deem it perfectly proper to consider high pressure steam just low pressure steam forced into less space.—EDS.]

## THE COAL-OIL MANUFACTURE.

MESSRS. EDITORS:—Perhaps no branch of industry has created so much attention of late as the manufacture of oil from coal and bitumen. Seduced by a report that this new and wonderful branch of chemical technology was profitable over and above all imagination, a great many people of all persuasions and professions, intent to realize a large fortune in a very short time, have ventured their capital in this enterprise. We have before our eyes the remarkable spectacle that, where, two or three years ago, only one or two manufactories existed, struggling hardly under the difficulties of the new process, we have now 20 or more mammoth concerns. We naturally ask the question, how have those new enterprises fared, and what are their prospects? The answer to the first of these questions is not a very flattering one; for, of all the numerous establishments, none has paid a dividend on the money invested, some have failed, and others were only able to prevent such a catastrophe by the wealth and determination of the persons who were engaged in the enterprise. The second query may be responded to as follows: If the stockholders or owners of the several manufacturing concerns have sufficient capital to keep up until the oil is fully introduced and appreciated, and until they have learned to make a uniformly good article, then this money invested in the manufacture of coal-oil will bring them eventually a fair interest, provided the material used and the location of the establishment will permit the production of good oil at a profitable rate. I am sorry to add that a good many concerns work such a viciously bad coal that they would do better to sell their retorts for old iron immediately, than to continue to produce an unsaleable article.

As to the actual value of coal-oil and paraffine, as illuminators, there can be no doubt; and I am perfectly satisfied that they will drive out of use most all other illuminating agents except gas. Manufacturers, however, will have to be satisfied with a fair profit on the capital and skill invested; those who dreamed of golden mountains will wake up to find them turned into cinders and ashes, and the evil odor prevailing will perhaps clear up their minds as to who it was that metamorphosed their gold and silver into the above-named worthless dust. \* \* \*

Cincinnati, Ohio, Sept. 13, 1859.

## DEATH TO COCKROACHES.

MESSRS. EDITORS:—Your published answers to correspondents in the SCIENTIFIC AMERICAN always have peculiar charms for me. I invariably scan them closely for the brief, pointed and practical advice they contain.

In your issue of the 10th inst. you reply to W. Z., of Pa., "There is no substance known to us which is an effectual extinguisher of the cockroach." Now, permit me to say there is such an "extinguisher," and it is very simple. Cockroaches love saccharine matter above all things, and they cannot swim, or at least they cannot get out of a vessel containing water sweetened with molasses or sugar. Therefore, take a common wash-bowl or tin wash-pan, fill it about half full of water, and sweeten it with a gill of molasses or half a pound of sugar (molasses preferred). Set the bowl or pan against the wall of the room or cellar infested by the imps, and they will flock to the beverage like toppers to whisky. Every one that drinks is sure to drown. I know not why, but it is so, as I have seen a quart of them caught thus in one summer's night. It is better to place the vessel in a corner of the room as the imps can then descend by two walls to their sweet groves. Mr. T. H. Clark, of this district, is entitled to the merit of discovering the plan for destroying the universal pest, and I take delight in communicating the information for the benefit of all unfortunate bipeds who may be suffering from the nuisance.

I congratulate you heartily upon your continued prosperity. I am sorry to say that I only lately subscribed

for the SCIENTIFIC AMERICAN. It recently contained one little fact which amply repaid me, and which alone was well worth the price of five years' subscription. Henceforth I shall take your journal until life's voyage terminates. Through its columns, as well as by private letters, you give better and fuller information, gratis, than I can get elsewhere "for love or money." Long may you flourish to serve the public, who are beginning to appreciate your labors. G. D. F.

Edgefield, S. C., Sept. 24, 1859.

## DEFLECTION OF BRIDGES, ICE, &amp;c.

MESSRS. EDITORS:—In your number of September 17th, a correspondent argues that "iron or ice will bear a greater weight passing over it at slow speed than at a greater," and states that the "rule of going slow is always observed in passing over an unsound part of an embankment." Perhaps the cautious movement of a train under such circumstances is advisable in order to detect and avoid any danger that may appear. There is more rack and danger to a bridge, undoubtedly, by passing trains over it at a high speed; but so long as the bridge remains in place, and especially when its condition is shaky or precarious, the quicker the train gets over it, the less danger there is in going down with it. The speed at which the train was moving at the time of the late accident at Schaghticoke, on the Albany and Vermont Railroad, was the only salvation of any part of the train. If it had been running slowly, the whole would have sunk into the gulf; but as it was, its speed carried the engine across, and the cars only went down with the bridge.

How is it with ice? When the first pellicle forms on our ponds, about Thanksgiving, what boy that ever slid on shoe-leather, or emulated the bird's flight on skates, does not know he would break through the instant he allowed his weight to settle upon the ice, and that nothing but the utmost effort and celerity will enable him to cross the crystal frost-bridge in safety?

Have we not read how—

"Swift Camilla seizes the plain,  
Flies o'er the unbending corn, and skims the main?"

But what would have become of Camilla if she slacked her flight, folded her pinions, and allowed her weight to settle, unbuoyed by the rapidity of motion? Methinks she would soon find herself in closer contact with "Mother Earth" than one of her ethereal birth would fancy. A. M. G.

Albany, N. Y., Sept. 19, 1859.

## A VERY GOOD SUGGESTION.

MESSRS. EDITORS:—Having seen some time since a remark about the bad accommodation there is in this city for posting letters, I have been thinking that all the up-town portion of the city could be accommodated with a system of posting within a few minutes' walk of all. The mode would be to attach a box to each of the cars on the different avenues; the conductor to receive the letters and charge one cent for carriage; a receiving-office to be established at the City Hall to deposit the letters in after each trip. I think it would be a very business-like way, and I think the one cent per letter would pay the railroad companies, as they would have to provide nothing but for receiving the letters. W. H.

New York, Sept. 20, 1859.

## CURE FOR INSECT BITES.

MESSRS. EDITORS:—In your issue for September 8d, I noticed the "Remedies for Insect Bites;" and, while they may be very good, I would suggest to any one who may have use for such remedies, that if they will take equal parts of common salt and gunpowder, and moisten them with strong vinegar, and apply the same to the sting of a bee or wasp, or even the bite of a snake (saying nothing of gnats, &c.), they will go no farther for a remedy. H. M.

New York, Sept. 26, 1859.

A SURE STYPTIC.—C. C. Lyon, a dentist of Maspath, L. I., writes to us as follows:—"Observing recently a case of death caused by hemorrhage from the extraction of a tooth, the following should be universally known as an infallible remedy:—Make plaster of Paris into the consistence of soft putty; and fill the cavity. It will soon become a solid plug."