

## DISSOLVING INDIA-RUBBER.

Messrs. Editors:—Having just received the last number of the first volume (new series) of the *SCIENTIFIC AMERICAN*, I cannot refrain from snatching time to express my deep gratification. It is now nearly nine years since I first subscribed to your paper; and I can say of it (what I can of none other of the number that I regularly take), that, in all those years I have seen only one article that has not been fair, honest and manly, disinterested and sound. This is strong praise; but I feel that it is deserved. Nor is this all. From circumstances of my life I am one who is compelled to look deeper than a mere scientific man would look at the drift of the various positions and assertions in their bearing upon revealed (scriptural) truth; and it is a sincere gratification to be able to say that in all scientific questions, in which far too many are found to set against each other revealed truth and discovered truth, you, Messrs. Editors, have invariably taken the sound conservative ground of assured harmony between the two; and hence I feel that the influence exerted by the *SCIENTIFIC AMERICAN* is not only for the enlarging of the bounds of knowledge, but for the establishing of the grounds of religion.

And now that I have expressed the gratification that I have felt in review of my past years of subscription, and of your constant progress in the value and excellence of your paper, let me add a few lines respecting a point mooted by two of your correspondents, in which they seem to contradict each other, and yet it appears that they are reconcilable. I mean, respecting dissolved india-rubber. One asserts that rubber dissolved in turpentine will not dry, and another maintains that it will. Allow me to suggest that both are right. Your last correspondent, who spoke of applying this varnish to boots, and of its drying there, has supposed absorption to be desiccation. Thin varnish of india-rubber will dry when applied to any substance which will sufficiently absorb a portion of the adhesive matter; but as a mere varnish applied to any hard body or non-porous substance it will not dry. Rees, in his "Encyclopædia," speaks of this in reference to balloons; Mackenzie, in his "Compendium of Varnishes," said the same. In the one case absorption assists the process of desiccation. Will not this reconcile the apparent discrepancy?

R. W.

New Berlin, N. Y.

[Our valued correspondent informs us that the "one article" which he says did not wholly please him, was one respecting perpetual motion. The particular article, however, he does not name, but it is of no consequence. The praise he bestows upon the *SCIENTIFIC AMERICAN* is exceedingly gratifying.—Eds.]

## HISTORY OF IRON SHIPS.

Messrs. Editors:—On page 406, Vol. I. (new series) *SCIENTIFIC AMERICAN*, in answer to a correspondent, it is stated you had been informed that a small iron steamer was launched in London in 1821. The first iron boat built, so far as I know, was a row-boat, in the year 1821, on the river Tyne, at Gateshead, England. The inventor was Samuel Thye. Three brothers and two other persons joined him; when their employer, Sir Robert Shafto Hawks, found out what they were buying sheet iron for, he gave it to them, likewise a silk flag. A small iron anchor was gilded and fastened to the top of the flag-staff; cannon were fired, and quite a demonstration made when she was launched. She was very light, and one of the partners, who still had doubts of her floating, early on a summer's morn, when the painter was going to decorate her, carried her down to the water, and solved the problem. She successfully ran races against wooden boats of the same capacity. Some of the party or their acquaintances getting drowned at the "Barges" (an annual corporation festival held on Ascension Thursday on the river Tyne), caused them to lay her up, and she rusted away.

I have the anchor which was carried on the flag-staff of this boat; and I recollect reading an article, a few years ago, in *Chambers's Edinburgh Journal*, speaking of this boat on the Tyne as being the first ever built. Samuel Thye, the inventor, is an old man in poverty, now living at South Shields, England. All his reward, hitherto, is the knowledge that thousands of his fellow-beings are getting a good living out of his invention.

Pittsburg, Pa.

W. T. G.

## COATING ELECTROTYPE PLATES WITH IRON.

Messrs. Editors:—The following process I have successfully employed in coating electrotype deposits with a coating of pure iron; thereby rendering them little inferior to steel plate engravings, as regards durability.

Dissolve 1 lb. of sal ammoniac in 1 gallon of rain water, then add 2 lbs. of neutral acetate of iron, boil the solution in an iron kettle for two hours, replacing the water lost by evaporation; when cold, filter the solution and keep it in close covered vats (when not in use) to prevent oxydation.

The iron plate used in the decomposition cell must be of the same surface as the plate to be coated with iron; a Smee's battery of at least three cells, charged with 1 part sulphuric acid and 60 parts water, being used for the decomposition.

To ensure success the following rules must be observed:—1st, The plate must be thoroughly freed from any greasy matter by immersion in a solution of caustic soda, then rinsed in clean cold rain water, after which dip it in dilute acetic acid, and immediately transfer it to the solution of iron; this will ensure perfect adhesion between the metals. 2nd, The solution must be filtered previous to use, to remove the oxyd of iron formed by exposure to the atmosphere. After the plates have been coated with iron they must be well rinsed in clear warm rain water, then in a weak alkaline solution, well dried with a piece of clean soft cotton, and slightly oiled to prevent oxydation.

The coating of iron is very hard and brittle, resembling the white iron used by manufacturers of malleable iron. Should any of the surface be damaged, the whole coating of iron may be removed by immersion in dilute sulphuric acid, and re-coated again by the above process.

R. W.

Newark, N. J.

CASHMERE GOATS.—The most beautiful shawls in the world are made from the long silky hair of the Cashmere goat, and it appears to us that this animal may be acclimated in many of the southern States. We are glad to learn that attempts are being made by enterprising planters in the South to acclimate it. We learn from the Savannah (Ga.) *Republican* that a small flock of the pure breed has recently been imported by the Hon. W. H. Stiles, of that State, and that, in all likelihood, they will be as much at home in Georgia as on the mountains of Asia. This is the second importation of such goats into Georgia, the first having been made several years ago, from which a number of flocks, especially half breeds, have been raised, all of which are prospering; and they promise, at some future day, to supply our markets with a manufacturing material which has made the name of Cashmere famous throughout the world.

CITRIC ACID IN ACUTE RHEUMATISM.—Dr. Hartung states that this substance acts more efficaciously than lemon juice in acute rheumatism. He forms a mixture with six drachms dissolved in five ounces of water, and sweetened with two ounces of sirup. This is to be taken in from 15 to 36 hours, the patient also drinking as much cold water as he pleases, and the parts being wrapped in wadding. Of 45 cases of acute rheumatism, some of them very bad ones, so treated, in two only was the result not satisfactory. Sometimes, even after 24 hours of treatment, there is a notable diminution in the pain and fever, although, in most cases, from two to three days are required to produce this amendment. The remedy does not induce diarrhea, and it favors transpiration.—*Druggist's Circular*.

STEAMBOAT DISASTERS ON WESTERN RIVERS.—The St. Louis (Mo.) *Democrat* gives the losses for 1859, as follows:—Steamboats sunk, some of which were subsequently raised, 62; steamboats burnt, 26; steamboats lost by explosions, 4; steamboats exploded steam-pipes, 2; lives lost by steamboat disasters, 396; estimated loss of property, \$2,363,000. The sinking of the sixty-two steamers was the result of the following causes: Encountering snags, logs, sawyers and stumps, 25; ice, 3; foundered in storms, 3; collisions with hidden obstructions, 31. There were, in all, collisions of boat with boat, or with river banks, bridges and wharf boats, causing disaster or considerable damage, 28.

## A COLUMN OF VARIETIES.

Lord Ross' great telescope is a reflecting telescope; the concave mirror or speculum is 6 feet in diameter,  $5\frac{1}{2}$  inches thick at the edges and 5 inches thick at the center, and weighs about 3 tons. It is composed of copper and tin—126 parts of copper to 57 $\frac{1}{2}$  of tin. Its focal distance is about 54 feet. It was ground with emery under water by the power of a small steam engine, and the process of grinding occupied 6 weeks. The whole telescope weighs 15 tons.....The mode in which the celebrated philosopher, Du Buat, measured the velocity of water at the bottoms of rivers was by throwing in a gooseberry, as nearly as possible of the same specific gravity as the water. It was carried along the bottom almost without touching it.....The action of a mixture of sulphuric and nitric acid on cane sugar forms a glutinous soluble mass, which, when first washed with water and dried, and then highly heated, explodes without residue. It is known as explosive sugar.....Many rivers, by the deposit of solid matters held in suspension in their waters, are constantly raising their banks. The surfaces of many rivers in alluvial districts are considerably higher than the land at a few miles on either side of them.....The roof of Westminster Hall, London, constructed of sweet chestnut timber, is 460 years old.....Wooden sailing vessels have occasionally remained sound after 100 years' active service.....Iron and wooden ships are, other things being equal, insured at equal rates.....The term "Sicilian Vespers" is generally used in reference to a terrible massacre of the French rulers of Sicily which took place in an insurrection of the people in 1282.....At the time when the battle of New Orleans was fought, Jan. 8, 1815, a treaty of peace had been signed in Europe between Great Britain and the United States, but the news of it had not reached this country.....The very common notion that the breastworks at the battle of New Orleans were formed of cotton bales is a mistake; they consisted almost wholly of earth.....The remark, so generally attributed to General Taylor at the battle of Buena Vista, "A little more grape, Capt. Bragg," was not uttered at the time, as was publicly stated by Captain Bragg just after the election of Taylor to the Presidency.....The exclamation so often attributed to Wellington at Waterloo, "Oh! for night or Blucher," is stated, on good historical authority, never to have escaped the lips of the Iron Duke.....There is a form of charcoal known as mineral charcoal, which is found associated with coal. Fine specimens have been obtained near Glasgow from the neighborhood of trap-dykes and blind-coal.....In Tuscany and other parts of Italy and Sicily, volumes of steam, called fumaroles, issue in large quantities through openings in the earth.....Locomotive tires are gradually extended in circumference by the friction to which they are subjected. They often become so loose upon the wheels as to require to be taken off and set anew.....In testing the ashes from coke, burned in the copper fire-boxes of locomotives, a considerable quantity of copper has been found. No such deposit was detected when white ash coal was burned.....Dr. Joule found that the power derived from the combustion of one pound of coal in a furnace was equal to that obtained by the decomposition of 9 lbs. of zinc in a galvanic battery.....If a small quantity of a solution of starch be exposed for a short time to the light of the sun it will be converted into grape sugar.....The surface of a stream flowing with any considerable velocity is always higher in the middle than at the sides.....The *Industry*, a timber-built steam vessel, launched on the Clyde in 1814, is still in existence.....Water, in passing from the solid to the liquid state, converts 140 degrees of sensible into latent heat; in passing from the liquid to the aeriform condition it absorbs about 1,000° of heat, rendering it latent. Alcohol, in evaporating, absorbs 374° of heat; ether, 163°; and spirits of turpentine, 138°.....Ehrenberg, who is called the father of microscopy, differs from nearly all the microscopists of the world in regard to certain little organisms being animal or vegetable; they move along with a slow steady motion through the water, and Ehrenberg calls them animals, but it is generally regarded as settled that they are vegetable.....Many animals, some microscopic and some visible to the naked eye, are fastened permanently to the rock on which they grow, and so nearly resemble a plant that no casual observer would take them to be animals.....Some of the microscopic animals resemble very closely a string of square beads, a part of them joined merely at the corners.