

Scientific Museum.

Ventilation.

The experiments of Leblanc upon vitiated atmosphere are of high interest. The quantity of carbonic acid in the atmosphere in the normal state, has been shown by the Saussures to vary from 3 to 6 parts in 10,000. Leblanc (Ann. de Chim. v. 223), has examined the quantity in crowded rooms, theatres, cities, &c. In the hospital La Pitie, the air of one of the wards containing 54 patients, afforded 3.1000 of carbonic acid, that is, 5 times more than that of normal air. Under similar circumstances, at the Salpetriere, the quantity was 8.1000. In Dumas' class room, after a lecture of an hour and a half, where 900 persons were present, the carbonic acid amounted to 1 per cent., and the same quantity of oxygen had disappeared. From other experiments, he considers this a maximum quantity for safety, and strongly recommends a better ventilation when so much carbonic acid is present. The result agrees with experiments made in this country. When the atmosphere is deteriorated by burning charcoal, he has seen death produced when 3 per cent. of carbonic acid was present in the atmosphere. In all such cases of death from stoves, he has found carbonic oxide in the air, and he attributes a deleterious effect to the agency of this gas. He has observed 1 per cent. of this gas to destroy an animal in two minutes, which is at variance with the statement of Nysten. This observation explains many of the inconsistencies which appeared some years ago in the evidence of some London chemists respecting the influence of Joyce's stoves. It is quite obvious that their structure was dangerous. Leblanc found that a candle was extinguished in air containing 4 or 6 per cent. of carbonic acid. In such an atmosphere, life may be kept up for some time but respiration is oppressive, and the animal is effected with very great uneasiness. Air expired from the lungs contains about 4 per cent. of carbonic acid, and hence this atmosphere is noxious. Even 3 per cent. in the atmosphere killed birds.

Spiders.

This insect casts its skin once a year; to do this it forms a kind of thick purse in one corner of the web, like that which is used to enclose the eggs. It then goes to the centre of the web and begins to distend its body with violence, for some minutes, until it splits the skin the whole length of the back. When this is effected it begins slowly to force its body through the aperture, and then gradually draws out its legs, one by one, till they are all extracted. The exuviae retains the entire form of the spider, but is perfectly transparent. The insect itself, after this great change, remains quite gelatinous, and of a pale green color, and it retreats to the afore-mentioned purse or bag, leaving the skin suspended in the web. It quits its shelter in about three days.

The Equator.

About the year 1810, Dr. Mitchell advanced an hypothesis to account for the existence of animal remains, belonging to warm and low latitudes, being found in the cold and frozen climates of the north. He supposed the axis of the globe to have changed 90 degrees, at some remote period. That the old equatorial line extended in the northern hemisphere, from the Bay of Bengal, near where the mouth of the Ganges is, through Tibet, Tartary, and Siberia, to the present North Pole, and thence along in North America through the tracts west of Hudson's Bay and Lake Superior, to the sources of the Mississippi, and thence down to the Gulf of Mexico, near its places of disembogement, and so onward across New Spain to the South Sea.

Guns.

Small guns were invented by Swartz, a German, about 1378; brought into use by the Venetians, 1382. Cannon were first used at the battle of Cressy, 1346; first used in England at the siege of Berwick, 1405; first cast in England, 1544; used in shipping by the Venetians, 1539; before they were only used to batter walls. Mohammed, at the siege of Constantinople, employed some of the largest

guns ever made use of before or since. One of his cannon was of such enormous size as to require 70 yoke of oxen to draw it, and 2000 men to man it. It discharged a ball of the weight of 300 lbs. The report was heard to a great distance, and the country shaken to the distance of 40 furlongs.

History of Propellers and Steam Navigation.

The term Propeller, as it is now applied to vessels propelled by submerged machinery, is very incorrect. A locomotive may as justly be termed a propeller as a ship which is driven by a screw. Nevertheless it is only a foolish waste of words to cavil upon such things as these, therefore we use the term as referring only to nautical vessels, as it is now generally understood, and which will be more fully explained hereafter.

The most ancient vessel on record was one that was propelled without oars, paddles, wheel or screw, and we must give it the preference in point of primogeniture to the very ancient canoe of the Indian, who is here represented with his paddle in his hand,



"Skimming Ontario's waters blue,
Like the swallow's wing, in his bark canoe."

The original vessel to which we refer was the Ark of our father Noah, beside which the modern Great Britain would be like a herring beside a whale.

The most ancient navigators that we have any account of, were the Phœnicians. The cities of Tyre and Carthage were famous for their fleets, and their citizens for maritime skill, such as was known in those days. To them the then distant Island of Albion was not unknown, for thither they came with their oared galleys to dig tin from ancient Cambria's bosom. From all that we can correctly gather on the subject of ship propulsion, the oar was the only universal instrument used for that purpose in the days of old, and a good instrument it is for that purpose, far superior, when the power applied is manual, to that of the paddle wheel, owing to the oarsman being able to apply his power more economically to the oar than the wheel. The application of wheels to propel boats dates as far back as the time of the Romans, or as some say, the Egyptians, but upon this point we are not positive, therefore we have arrayed an "ancient mariner," at the wheel, as a cosmopolite, belonging to any part of the world our readers may assign



him. In 1682 Prince Rupert propelled his barge in this manner, and there are two or three other instances on record nearly as old. Of one thing we are certain, that before the introduction of steam propulsion, navigation was a slow process, and that is not long ago. If Solomon had been acquainted with such a power of propelling the ships of his fleet, they would not have taken three years to make their voyages for peacocks and California gold.

In commencing this history we can do but little more than introduce the subject in this article, previous to entering upon a connected, clear, and the most complete history of steam navigation that has yet been published, and which is the first attempt of the kind by any periodical whatever. Along with other great improvements of the age, the newspaper press in this instance, assumes the office—the dignified office, of historian, as well as chronicler.

The great improvement which has been effected by steam power, as applied to navigation, by increasing the intercourse between people of different and distant nations, has resulted more than any other invention on record, (and is still augmenting) to unite mankind, we hope, in one great family, working in concord for their common good. The steam engine may be called the grand improver of

the age. Its power can be increased to almost any extent, and can be made to execute the most difficult and delicate operations. For business or pleasure it conveys the traveller from place to place, with celerity, convenience, and economy.

The origin of the application of steam to propelling vessels is claimed by several persons of different nations. Tug vessels propelled by wheels driven by horses, were proposed and employed long before steam was thought of for that purpose. The most early account in our possession respecting the employment of steam to propel vessels, is that of a Spanish Captain, named Blas De Garey, who, it is said, in 1543, in the presence of Charles V., in the harbor of Barcelona, propelled a vessel of 200 tons burden, against wind and tide, at a considerable speed. The account of this vessel is taken from the Royal Archives of Simuncas, and was first given to the world in 1825. The vessel is described to have had paddle wheels suspended on its sides, but after the experiment was made, although the emperor paid all the expenses, the inventor took out his machinery, and with the wisdom of all ancient inventors, left it to rot in darkness. Quite a controversy has existed among paper wasting historians, respecting the nature and construction of De Garey's steamboat, but all that we have been able to learn from an examination of opposite opinions about it, is nothing at all, and since De Garey has not enlightened us himself, we may justly dismiss the claims of Spain, for nothing was heard about it by the world until steam navigation had been successfully established both in America and Great Britain. In this introduction we speak no more than our honest convictions, when we assert that the steamboat is not such a wonderful invention in itself; and that to none of its successful inventors—Miller, Fulton and Bell—can we award such high laudations as are generally conferred upon them by common historians, lecturers and florid essayists. The steam engine, is the parent of the successful steamboat, and this will be fully established as we proceed in this history, for long before Miller, Fulton and Bell, steamboats had been built and tried, but all were dead failures, until the improved steam engine of Watt, was applied to them, with it they at once, on the Hudson, in the New World, and on the Clyde, in the Old,

"Walked the waters like things of life."

In our next we will publish an engraving of Jonathan Hull's Steamboat for which a patent was granted, the first of its class on record.

Caoutchoucine.

This is a highly inflammable liquid obtained from caoutchouc by destructive distillation. It has excited considerable interest among chemists from two very extraordinary characteristics which it is found to possess, viz., that in a liquid state, it has less specific gravity than any other liquid known, being considerably lighter than sulphuric ether, and in a state of vapour it is heavier than the most ponderous of the gases. When mixed with alcohol, it is a solvent of all the resins and particularly copal, which it dissolves at the ordinary temperature of the atmosphere a property possessed by no other solvent known. It is thus particularly useful for making varnishes in general. It also mixes readily with oil, and has been found particularly valuable for liquefying oil paints, which it does without in the slightest degree affecting the most delicate colours; for it speedily evaporates, and the paint is then dry and firm as before solution.

Oriental Cooking.

The following from Lynch's Narrative, will give us an idea of something to be grateful for, viz., the blessings of civilization:—"We were amused recently at witnessing an Arab kitchen in full operation. The burning embers of a watchfire were scraped aside, and the heated ground scooped in a hollow to the depth of six or eight inches, and about two feet in diameter. Within this hole was laid, with scrupulous exactness of fit and accommodation to its concave surface, a mass of half-kneaded dough made of flour and water. The coals were

again raked over it, and the fire replenished. A huge pot of rice was then placed upon the fire, into which, from time to time, a quantity of liquid butter was poured and the compound stirred with a stout branch of a tree, not entirely denuded of its leaves. When the mass was sufficiently cooked, the pot was removed from the fire and the coals again withdrawn, and the bread taken from its primitive oven.—Besmeared with dirt and ashes, and dotted with cinders, it bore few evidences of being an article of food. In consistency, as well as in outward appearance, it resembled a long-used blacksmith's apron rounded off at the corners. The dirtiest ash pan of the southern negro would have been a delicacy compared to it. The whole party gathered round the pot in the open air, and each one tearing off a portion of the leather bread, worked it in a scoop or spoon, and dipping pell-mell into the pilau, made a voracious meal, treating their spoons as the Argonauts served their tables, eating them for dessert. With a wash in the Jordan they were immediately after ready for sleep, and in half an hour were as motionless as the heaps of baggage around them.

Missouri Rice.

A farmer, near St. Louis, has raised some excellent rice without irrigation (submerging the plant for some time) and it is said to be full and sweet in the berry, although not so white as that grown farther South.

LITERARY NOTICES.

CHAPMAN'S AMERICAN DRAWING BOOK.—No. 3 of this splendid work has just been issued by Redfield, at Clinton Hall, Nassau street, N. Y. It treats of Perspective, and with a masterly hand. The engravings are superb and the typography unsurpassed by any book with which we are acquainted. It is an honor to the author and publisher, and a credit to our common country. The art of drawing is a useful and elegant accomplishment, and no person can avoid this conclusion after looking over the pages of this work.

THE BANKER'S MAGAZINE AND STATISTICAL REGISTER, for November, contains a most able article on Repudiation, and an admirable essay on Life Insurance; these, together with Bank Statistics, and many other miscellaneous articles, make up a capital number. This work is edited and published by J. S. Higgins, Baltimore, and is essentially a standard work of great usefulness.



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