

Scientific Museum.

Useful Statistics.

In 1820, the number of books in all the public libraries of Germany amounted to 4,000,000, without reckoning memoirs, pamphlets, manuscripts, etc.

Many animals, which under ordinary circumstances are perfectly innocuous, become armed with a salivous poison when infuriated. Man himself becomes somewhat poisonous when highly excited by anger.

The light of the full moon is to that of our day only as 1 to 90,000.

If the smallest quantity of air be admitted into a vacuum, in which a delicate air thermometer is enclosed, the diminution of the space occasions an elevation of temperature, and the enlargement occasions cold.

In England, the only natural temperature that is agreeable lies between 60 and 70°; in this climate (lat. 35° 40' N., long. 79° 3' W.) between 70 and 80°.

Thirty years ago, a new method of taking the lives of animals destined for the market, which greatly diminished their sufferings, was extensively employed in London. It was effected by nitrogen. The meat was said to retain its freshness better, have a more agreeable taste, and more easily preserved. Why was it laid aside?

It is calculated that a person has 1600 opportunities of leaving London in the course of 24 hours by stage coaches.

At one time, the number of letters daily distributed by the post-office at Paris was about 32,000, and of journals 1,800; whilst in London, in the same year, the amount of letters was 163,000, and of journals 26,000.

Thenard succeeded in causing pure water to absorb oxygen to the enormous extent of 650 times its volume. Its taste was rendered slightly astringent and bitter.

Sugar taken in lumps is an antidote for verdigris; vinegar counteracts the dangerous effects of alkaline substances and narcotics; and white of eggs those of corrosive sublimate.

Sanctoris invented the thermometer in 1590; re-invented by Corn. Drebbel, 1620; improved by Reaumur, 1730, but reduced to a correct standard by Fahrenheit in 1724.

Steel was known to the Greeks, in the time of Homer—about 1000 B. C.

The first newspaper printed in Boston was "The News Letter," April 24, 1704; in Philadelphia, "The American Weekly Mercury," Dec. 22, 1719; in New York, "The New York Gazette," Oct. 16, 1725; in Rhode Island, "The Rhode Island Gazette," Oct., 1732; in New Haven, Conn., "The Connecticut Gazette," 1755; in New Hampshire, 1756; in Providence, 1762; in Kentucky, 1787; in Tennessee, 1790.

Knowledge is the true alchemy that turns every thing it touches into gold. It gives us dominion over nature, unlocks the store-houses of creation, and opens to us the treasures of the universe.

To make us happy we require not much less than every thing; to make us miserable, not much more than nothing will suffice.

According to Herschel, the equatorial diameter of the earth is 7,925,648 miles; the polar, 7,899,170.

Water at the depth of 362 miles from the surface would be as heavy as mercury; and air as heavy as water at 34 miles; while at the centre the density of marble would be increased 119 times.

The fact that the temperature gradually increases towards the centre of the earth, attracted the attention of philosophers more than a century ago; in 1807 D'Aubuisson revived the investigation. The greatest depths at which experiments have been conducted, are 1713 feet in Mexico, 1584 in England and 1300 in Germany.

If the density of air at the surface of the earth be represented by one, at 7 miles above the earth it will be 1-4th, at 14 miles 1-16th, at 21 miles 1-64th and so on; 100 cubic inches of air at the temperature of 60° weigh 30½ grains.

The proportion of land to sea is, accurately, as 266 to 734. The dry land, therefore, occupies 52,353,231 square miles, and the ocean an area of 144,463,427.

During the last thousand years the deltoid deposits of the Rhone has gained upon the Mediterranean from 4 to 6 miles. Notre Dame des Ports was a harbor in 898, but is now a league from the shore; Psalmodi was an island in 815, and is now two leagues from the sea; and the Tower of Tignaux, erected on the shore in 1737, is already a French mile from it.

The greatest heights with which we are acquainted are those of the Himmaleh range in Asia, the Dhawalagiri Peak being 28,077 feet, and the Jewahir 25,747. Of the Andes, the Nevado di Sorato is 25,250 feet, and Illimani 24,450. The Alps rise to 15,668 feet, the Pyrenees to 11,283; Geesh (in Abyssinia) is 15,000, and Teneriffe gives 12,180.

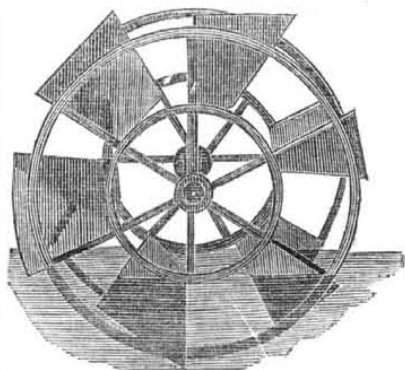
The animals peculiar to a country constitute its "Fauna" and the plants its "Flora." As naturalists speak of the existing Fauna and Flora of any country, so geologists speak of the fossil Fauna and fossil Flora of certain geological epochs and formations.

In Europe there are three centres of volcanic action—that of the Levant (as Ætna), of Iceland (Heela), and of the azores. J. W. O.

History of Propellers and Steam Navigation.

[Continued from page 296.]

FIG. 60.

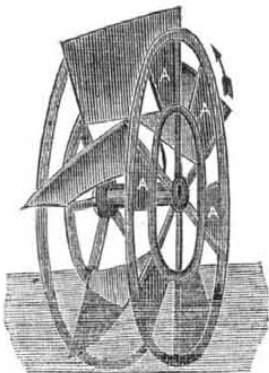


It has often been attempted to place the floats of paddle wheels oblique in order to allow the blades to enter the water with an increasing surface upon the principle of the wedge, to reduce the tremulous motion of the vessel caused by the direct action of the common blades upon the water. Among the many plans for this purpose, we present one patented by a Mr. Biram, an English engineer.

In figure 60 we have a side view and fig. 61 is a perspective view.

In this the floats A are supposed to be made of iron-plate, and consists of two parts; one part is a flat plate rivetted to the ring and arm, and this is met by a second plate slightly curved and set obliquely to the axis of the paddle. By this arrangement the float enters the water gradually, and communicates to it an angular motion at right angles to its own plane. The water as it recedes from the oblique float is thrown upon the parallel side-plate, and being thus confined, it is supposed to give the same amount of reaction as would be produced by action of the common float.

FIG. 61.



It will be observed that the action of the floats upon the water is angular, as is fully shown. It often happens that to get rid of one evil, a second evil is generated—the latter being greater than the one intended to be removed. This was the case with Robertson Buchanan's feathering paddle wheel. To make the buckets enter and leave the water

vertically, so much friction was caused by the means he employed that the attempt to supersede the common paddle, resulted in a complete failure.

This paddle wheel of Biram, although it has the floats entering the water gradually, yet the small interval allowed for the water to recede before full immersion of the float, affords no great remedy that way, and on the other hand, the water must re-act from one oblique surface upon the succeeding one, thereby giving it two motions.

Acoustics.

The intensity of sound, like that of attraction, diminishes in the inverse ratio of the squares of the distances of the sounding body, when opposing currents of air or other obstacles do not interfere.

According to experiments made by the French Academicians, the velocity of sound at a temperature of 55° Fahr. is ascertained to be 1,044 feet per second; but it has been variously given by different philosophers. According to Flamstead and Halley, it is 1,142; according to recent experiments in Holland, its mean velocity is 1,120 feet per second.

A whisper, so far as it goes, travels as fast as the report of a cannon; it also describes equal spaces in equal times. The strength of sound is greatest in cold and dense air, and least in that which is warm and rarefied. During Captain Parry's first voyage, in lat 74° 40' N., people might be heard conversing distinctly, in a common tone of voice, at a distance of one mile.

Sound travels through different media with various velocities. Through air, at 1,130 feet per second; water, 4,900; cast iron, 11,090; steel, 17,000; glass, 18,000; wood, 4,636 to 17,000.

Two sets of sonorous vibrations of equal intensity, and encountering each other in opposite phases of vibrations, will interfere and become mutually checked; and thus silence be produced by the conflict of two sounds. Sonorous vibrations, on impinging on a plain surface, are reflected from it in such a manner that the angles of incidence and reflection are equal.

A perfect echo ensues after the lapse of 0.1 second.

Sound is reflected by curved surfaces in the same manner as light and heat.

METHOD OF COMPUTING DISTANCES BY SOUND.—Assuming that sound passes through the air, uniformly, at the rate of 1,142 feet in a second, or through a mile in about 4.2-3 seconds, any distance may be readily found, in feet, by multiplying the time, in seconds, which the sound takes to arrive at the ear, by 1,142; or in miles by multiplying the same by 3-14.

NOTE.—The time taken for the passage of sound, in the interval between seeing a flash of lightning, or that of a gun, and hearing the report, may be observed by a watch or a second's pendulum; or it may be determined by the beats of the pulse, counting, on an average, about 70 to a minute, for persons in moderate health, or 5½ pulsations for a mile.

EXAMPLE 1.—After observing a flash of lightning, it was 12 seconds before I heard the thunder: required the distance of the cloud from which it came:— $12 \times 3 \div 14 = 2,4.7$ miles, Ans.

Light comes from the sun in about 8 minutes; hence light travels at the rate of 200,000 miles per second; or, according to Sir J. Herschel, at the rate of 192,500 miles in a second.

Mathematics of Bees.

The warmest admirers of honey and greatest friends to bees, will never, I presume, contend that the young swarm, who begin making honey three or four months after they are born, and immediately construct these mathematical cells, should have gained their mathematical knowledge as we gain ours, and in three months' time outstrip Mr. Maclaurin in mathematics as much as they did in making honey. It would take a senior wrangler at Cambridge ten hours a day, for three years together, to know enough mathematics for the calculation of these problems, with which not only every queen bee, but every undergraduate grub, is acquainted the moment it is born.—[Sidney Smith.

Petrification.

About sixty miles above Georgetown, Williamson County, La., there is a valley of petrifications probably unequalled on the globe. Not only prostrate trees are petrified into the finest flint, but leaves of trees, flowers of plants, and often the whole plant bearing fruit is petrified. A large tarantula was found as natural as life, sitting on a rock, completely and in every part turned to stone. An enormous Indian arrow head has also been found. The petrifications and the floral beauties there hardened into rock, would astonish and delight the naturalist.

Divisibility of Matter.

A remarkable instance of the divisibility of matter is seen in the dyeing of silk in cochineal, where a pound of silk, containing eight score threads to the ounce, each thread 72 yards long, and the whole reaching 104 miles, when dyed scarlet, does not receive above a drachm additional weight; so that a drachm of the coloring matter of the cochineal is actually extended through more than 100 miles in length; and yet this minute quantity is sufficient to give an intense color to the silk with which it is combined.

It is estimated that by December next four thousand miles of plank road will be in use in Ohio.

LITERARY NOTICES.

GRIFFITH'S NAVAL ARCHITECTURE.—Number 6 of this superb work is just issued. It has three excellent plates, and some of the most appropriate and judicious remarks on proportion, that we have ever perused. On our editorial page, there is a notice of a splendid present presented to Mr. Griffith by the Emperor Nicholas. To those who have taken this work, we would say, that the model sent to the Emperor, is described in No. 3.

THE PHRENOLOGICAL JOURNAL.—This able monthly magazine for June, published by Powells & Wells, contains a biography and likeness of John Quincy Adams, and a number of other excellent articles.

"Three Strong Men," a new 25 cent novel by Alexander Dumas, just published by Dewitt & Davenport, Tribune building.

Shakspeare's Dramatic Works, No. 17, published by Phillips, Sampson & Co., Boston, contain the popular play entitled "King John." This work, when complete, will outvie in beauty any similar edition of Shakspeare ever issued. Price 25 cents per number; for sale by Dewitt & Davenport.

"The Miner's Daughter, a Tale of the Peak," by Charles Dickens, has just been issued by Dewitt & Davenport, price 6 1-4 cents. It covers 30 pages, and is after the style of its renowned author, piquant and truthful in delineation.



FIFTH YEAR OF The Best Mechanical Paper IN THE WORLD!

A New Volume of the SCIENTIFIC AMERICAN

is commenced about the 20th of Sept. each year, and is the best paper for Mechanics and inventors published in the world.

Each volume contains 416 pages of most valuable reading matter, and is illustrated with over 500 MECHANICAL ENGRAVINGS OF NEW INVENTIONS.

The Scientific American is a Weekly Journal of Art, Science and Mechanics, having for its object the advancement of the INTERESTS OF MECHANICS, MANUFACTURERS and INVENTORS. Each number is illustrated with from five to TEN original ENGRAVINGS OF NEW MECHANICAL INVENTIONS, nearly all of the best inventions which are patented at Washington being illustrated in the Scientific American. It also contains a Weekly List of Patent Claims; notices of the progress of all Mechanical and Scientific Improvements; practical directions on the construction, management and use of all kinds of MACHINERY, TOOLS, &c. &c. This work is adapted to binding and the subscriber's possession at the end of the year of a large volume of 416 pages illustrated with upwards of 500 mechanical engravings.

TERMS: Single subscription, \$2 a year in advance; \$1 for six months. Those who wish to subscribe have only to enclose the amount in a letter.

A PRESENT!

To any person who will send us Three Subscribers, we will present a copy of the PATENT LAWS OF THE UNITED STATES, together with all the information relative to PATENT OFFICE BUSINESS, including full directions for taking out Patents, method of making the Specifications, Claims, Drawings, Models, buying, selling, and transferring Patent Rights, &c.

N. B.—Subscribers will bear in mind that we employ no Agents to travel on our account.

MUNN & CO.,
Publishers of the Scientific American, 128 Fulton street, New York. All Letters must be Post Paid.

Inducements for Clubbing.

5 copies for 6 months, \$4 10 copies for 12 months, \$15
6 " 12 " " 20 " for 12 " " 28
Southern and Western money taken at par for subscriptions. Post Office Stamp taken at their full value