

The Mystery of the Lakes.

"In answer to the rather absurd assumption of the editor of the SCIENTIFIC AMERICAN, that the salmon and herring found in the lakes above the Niagara must have passed into those waters originally through some subterranean stream connecting with the ocean, a writer in the *Defiance (Ohio) Democrat* says, it is much more reasonable to believe the fish entered the Upper Lakes by way of Fox river, which connects the Mississippi with Green Bay and Lake Michigan, and through a passage connecting Georgian Bay and the Ottawa. Very true. Those outlets must have escaped the recollection of the SCIENTIFIC AMERICAN. But were there no such outlets, it would scarcely be necessary to tunnel a continent to solve the mystery of the existence of certain fish in the northern lakes. As well might we contend that every one of the scores of lakes studding the Sierra Nevada range is similarly connected with the waters of the lower altitudes, because all abound in fish. The lakes on the eastern slope of the mountains, which have no outlet save into the Great Basin, are filled with a variety of the finny tribe, and a number of small lakes, without any visible outlet, are equally favored. The only solution of the mystery, then, is the supposition that the spawn of fish, or the fish themselves, have been dropped into these isolated waters by birds, or conveyed thither by Indians. If this be rejected, we are driven to the less rational presumption that fresh water possesses the elements of animal creation."

[We copy the above from the *Golden Era*, a very sprightly paper published in San Francisco. We do not suppose that the writer wishes to do us an injustice, by imputing to us the "absurd assumption" and a treacherous memory about certain "outlets;" and we therefore invite his attention to a brief summary of the leading points of our position on this exciting subject. In the first place his remarks reveal an utter ignorance of the question upon which he seems to be so wise; and in the next place, seven years have elapsed since we published the extract to which the above is intended as a demolisher. The article was taken from and credited to the *Welland Advertiser*, Canada West. The editor of that journal endeavored to account for the fact of salmon and herring—partly sea-fish—being found in Lake Erie, above the Falls of Niagara, by assuming that there was a subterraneous passage between the Upper Lakes and Lake Ontario. Soon afterwards, however, one of our correspondents informed us that such fish had never been found in the Upper Lakes until the Welland Canal was built. His letter was published on page 270 of Vol. VII. of the SCIENTIFIC AMERICAN, and at once settled the question. We never made any remarks about the probability or improbability of such a subterraneous passage, but asserted that such fish must have some way of communicating with the sea.

The allusion of our Californian critic to the existence of fresh-water fish in the Sierra Nevada Lakes exhibits an ignorance of the nature of the question; for let it be borne in mind that it was not about fish being found in the waters above the Falls, but the particular kind of fish; those which are known cannot live without their annual salt-water excursions. The writer in the *Defiance Democrat* seems to be unacquainted with the nature of salmon; they are a northern cold-water fish, and are therefore not very likely to make a journey to the Lakes through the warm Gulf of Mexico, and thence up the Mississippi. The idea is absurd.

To Patentees.

Messrs. MUNN & Co. would give notice that they have had a very extensive and successful experience in the management and prosecution of rejected cases, and their services may at any time be engaged on very moderate terms. One of the members of the firm devotes his entire time to the examination and prosecution of rejected cases, arguing them before the Patent Office, the Board of Appeals, United States District Court, &c. They also attend to interferences in all parts of the country, applications for extensions, &c.

Messrs. MUNN & Co. will also furnish, through their foreign agents, copies of any English, French, Belgian or other patent. Write by mail and give full particulars.

Prevention of Fire on Board of Ships.

Messrs. EDITORS:—The destruction of several iron steamships by fire witnessed during the last year, has again directed the attention of shipbuilders, shipowners, and of all who feel an interest in the prevention of such dreadful losses of human life and property, to the different inventions hitherto used or proposed for preventing the outbreak and extension of destructive fires on board of ships. People once believed that iron-built ships were much safer in case of fire than wooden-built ones. The mournful loss of the *Austria* in the midst of the Atlantic, the complete burning down of the iron Lloyd steamer *Hudson* in the harbor of Bremen, and the destruction of two American steamers and an English iron one, all occurring within less than seven months, have completely uprooted the favorable opinions hitherto entertained by shipbuilders, shipowners, insurance companies, and the public in general, as to the fire-proof safety of iron ships. Many practical men begin to believe that so-called iron ships, (on which generally only the frame-work and outside plates are of iron) are even more dangerous than wooden ships; the iron being a much quicker and better conductor of heat than wood. The English government has in some regard favored this opinion, and has therefore (since 1851) ordered, that all iron-built war-frigates should adopt and use the patent "Fire Annihilators." But science and experiments and real accidents (in the Crimean war) have proved the fact, that this invention is of use only in closed-up rooms, in which case fire and flames are rapidly extinguished by sulphuric and azotic vapors. In the open air, however, and in open rooms, the "Fire Annihilators" are of little or no power against the extension of the flames.

During last year, a German chemist, Mr. Bucher, secured a patent in almost all European states, for what he calls a "Fire-preventing Balloon;" and this invention has shown itself so practically useful that several German insurance companies have diminished the premiums of insurances on all buildings, in which Bucher's balloons are at hand. On the occasion of the large fire which destroyed a great portion of the immense beetroot-sugar factory at Waghausel (near Baden) some weeks ago, two of Bucher's balloons, when thrown into a covered wooden bridge, connecting the factory with the warehouse, immediately extinguished the fire on the burning bridge, and thus saved the latter building, which at this time contained more than a quarter of a million dollars' worth of raw and refined sugar. On that occasion it was proved, however, that these balloons, when thrown up on the open and already widely-extended fire of the factory, had no power to extinguish or to stop the ravaging flames. Notwithstanding this, I deem it both proper and extremely necessary that the government should enact a law providing that, in every inhabited room of a ship, there should be placed some such fire-preventive; for, by the experiment I have seen, I am quite sure that if used before the fire has got a too-wide extension in the room, they will be effective in almost every instance.

Another patented invention for preventing the spread of fire is known in Europe under the name of "Thouret's Fire-preventive," which I will endeavor to speak of at some other time. S.

[Will our correspondent favor us with a more minute description of the nature of Bucher's balloons? His views in reference to the "Fire Annihilator" are the same as we put forth when it was prominently before our people.—EDS.]

RICH INVENTOR.—Col. Samuel Colt, in 1847, was so poor that he mortgaged a lathe and other machinery to the Amos Manufacturing Company, to secure a debt of \$750. Colt is now generally believed to be the richest man in Connecticut, and has the most complete armory for the manufacture of fire-arms in the world. He is a successful inventor.

Water-wheels by Night and Day.

A very common opinion prevails among millers and others that water-wheels do more work during night than in the daytime. In other years while attending water-wheels, we had formed a similar notion, but in theory we condemned it. We learn from the *Brunswick (Me.) Telegraph* that Professor Cleveland instituted a series of experiments several years since, to determine the correctness of such opinions. Our cotemporary states that in Maine, where saw-mills are numerous, the belief is universal that water-wheels always move faster at night. The result of Professor Cleveland's experiments was that they did not move any faster by night than by day. He selected a beautiful day in the month of August, and at 2 P. M., suspended a barometer in the mill, when the atmospheric pressure was found to be 30.19 inches—the temperature of the water 72° Fah. The wheel was allowed to revolve freely—no log being on the carriage—and its revolutions were counted by several persons, when it made 96 per minute. At midnight he revisited the mill again, the mercury in the barometer stood at 30.26 inches and the temperature of the water was as before. Under the very same conditions, the wheel made 96 revolutions per minute again—the depth of water being the same in both experiments. From these experiments there are good grounds for concluding that star or moonlight has nothing to boast of over sunlight in grinding flour or sawing our logs.

Tunneling Mountains.

In the SCIENTIFIC AMERICAN for Nov. 6, we published an interesting article in reference to the stupendous project undertaken by the Sardinian government of tunneling Mount Cenis, and thus uniting the valleys of Piedmont with Upper Italy. The appearance of this article excited considerable interest, and led to inquiries in reference to the nature of the machinery to be employed. We learn from the *London Artizan* that the immense apparatus to be used in this work is in progress of construction at Seraign, in Belgium, under the direction of M. Soummeiller, one of its inventors. It consists mainly of an hydraulic compressor, which, after having compressed the air, acts as a motive power to force into the body of the rock the blasting drills of the miners, thus forming mining cavities. The compressor serves also as a motive force to clear away the debris resulting from the explosion, and at the same time furnishes the means of ventilating the tunnel.

Experiments are shortly to be made at Seraign to test the late improvements in this machinery, by means of which it is expected that the great tunnel—about eight miles in length—will be bored in less than six years, which, under the old system, would have required thirty years to complete.

NEWSPAPERS.—There are published in New York city 18 daily papers—4 in the German, 1 in the French, 1 in the Italian, and 12 in the English language. There are also 37 monthly and semi-monthly, 8 semi-weekly, and 105 weekly papers. There are ten illustrated papers published in London every week, whose aggregate circulation is 1,744,000 per week, and the weekly cost of the engravings is about \$3,000; making a total annual circulation of 90,688,000, copies, and spending \$150,000 a year for engravings.

CHURCHES.—New York is distinguished for the number and beauty of its church-edifices, and many of them are models of architectural elegance. There are 275 churches within the limits of this city. They may be classified as follows:—Presbyterian, 54; Episcopal, 52; Methodist, 38; Baptist, 30; Roman Catholic, 26; Dutch Reformed, 21; Jewish synagogues, 17; Miscellaneous, 17; Congregational, 6; Universalist, 4; Unitarian, 3; Friends, 3; Second Advent, 2; Swedenborgian, 1; Primitive Christian, 1.

Ultimate Value of Patents.

The *London Mechanics' Magazine* says that a firm in that city are extensively engaged in making carriages for the King of Prussia, and adds: "It can scarcely be otherwise than encouraging to inventors to find that the discoveries of some years past, which for a time were altogether abandoned for lack of appreciation, and patents which have almost consigned their sanguine originators to a lunatic asylum, are now the common place things of the day. It is with patents as with children—they can be made to earn their own, if they be but kept long enough, and there exists intrinsic merit in their composition."

These remarks, so truthful and forcible, are but a confirmation of our own experience. It is a common thing with us to receive letters, asking where such and such a patentee can be found; the object of such enquiries being to effect the purchase of the right of the unexpired patent. An instance occurred within a few days, when a party desired to purchase the right to a patent granted in 1847, and upon enquiring, it was found that the patentee was deceased. Inventors are oftentimes in so much of a hurry to dispose of their rights that they incur great losses.

A Gentle Hint to Postmasters.

We are perfectly aware that the SCIENTIFIC AMERICAN is a highly interesting journal, and that there are very few who do not wish to read it; but that is no reason why certain Postmasters should abstract our supplemental numbers, as they have often done, and thus deprive our subscribers of their papers. As it is our wish that the present number should be in the hands of every subscriber, we hope the Postmasters will do us the favor of making an especial point of promptly delivering it, and we will then be happy to furnish every Postmaster with a copy for his own private reading, if requested to do so.

BRITISH STATISTICS.—The estimates for the maintenance of the navy for the ensuing year amount in round numbers to the sum of \$41,000,000.

The value of the exports of the produce of Great Britain in 1858, amounted to \$580,000,000—the decrease as compared with the previous year is about \$22,000,000—of which amount one-half comes of the falling-off in the iron trade. The total receipts of the railways for 1858 were \$118,815,000. The expenditure of capital on these railways combined amounts to the enormous sum of \$1,579,950,000, being on an average about \$165,000 per mile.

BIG EATERS.—The value of food consumed in New York last year is estimated at \$12,000,000, and the number of the various quadrupeds that have been eaten is:—beeves, 191,374; cows, 10,128; veals, 36,675; swine, 551,479. Of the beeves, the greatest number—a thousand per week—came from Illinois, which is the greatest beef-producing State in the Union. It furnishes twice as many as the State of New York.

COTTON.—As an evidence of the renewed activity in business, we may refer to the fact that the largest traffic ever done in cotton in one day in New York was on Thursday, the 31st of March, when sales amounted to 17,600 bales, valued at about \$1,100,000.

SEWING MACHINES.—Some idea of the magnitude of this business may be obtained by the announcement in one of our exchanges that the Empire Machine Company of Norwalk, Conn., have contracted for building 5,000 such machines for one New York company.

THE GREAT EASTERN.—It is expected that the trial trip of this monster vessel, which has been dragging along for several years towards completion, will take place in July, sailing from Weymouth, England, to the middle of the ocean and back again, to test her qualities under all possible conditions of sail and steam.