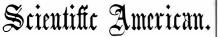
Scientific American.



NEW YORK, APRIL 21, 1855.

The Effects of Wind and Water on Climates In a short article a few weeks since, we described the peculiar influence of the "Gulf Stream" upon the climates of Western Europe, and presented the opinion entertained by some, that the waters of the Amazon river were the cause of this wonderful ocean current. In Lieut. Maury's new volume, "The Physical Geography of the Sea," we find this question discussed with rare ability. and with a profound knowledge of the subject. He compares the Gulf Stream to a water heating apparatus for buildings. "The warm waters," he says, "which are confined in the Gulf of Mexico, is such a heating apparatus for Great Britain, the North Atlantic, and Western Europe." Instead of attributing this stream to the waters of the Amazon, he says, "the furnace is the torrid zone, the Mexican Gulf and Carribean Sea are the cauldrons; the Gulf Stream is the conducting pipe, and its heat is taken up by the genial west winds, and dispersed throughout Britain and the west of Europe." In another place he says, "It is the influence of this stream upon climate that makes Erin the Emerald Isle, and clothes the shores of Albion in ever-green robes; while in the same latitude on this side, the coasts of Labrador are fast bound in fetters of ice." In an article in the American Journal of Science, Vol. 45, Mr. Redfield says, "in June 1831, the harbor of St. John's, Newfoundland, was closed with ice; yet, whoever heard of the port of Liverpool, 20° further north, being closed with ice, even in the dead of winter."

It is, indeed, a peculiar arrangement of Him who rules the winds and the waves, that the temperate climates of different countries in Europe are dependent on a hot water sea basin, situated near the American continent, and that this hot water should pass by large tracks of countries on this side of the Atlantic, leaving them bound in icy fetters, and dispense its favors to nations on the other side of the ocean. But so it is, and it requires the winds as well as the waters to distribute those genial favors to western Europe. During the past winter this was displayed in a remarkablemanner. For about four weeks easterly winds had prevailed in Great Britain and Ireland, during which period the warmth of the Gulf Stream was prevented from being wafted to those coasts. The result was, that the most intense cold within the memory of man was experienced there ; ice formed in large quantities on the sea coast, and, as a world's wonder, the navigation of the rivers Thames and Mersey was greatly obstructed, and the port of Liverpool almost ice bound for some days. In Ireland the effects of this severe cold was such, that thousands upon thousands of small birds-larks thrushes, &c., &c.,-which do not migrate, were found dead in the fields and on the highways. In Scotland, the effects of this severe cold were more wonderful still. Hugh Miller-that eminent geologist and keen observer-in the Edinburgh Witness says, "the present intense frost-coincident at new moon with a stream tide-has killed many of the littoral shell-fish around our shores, and they now lie by thousands and tens of thousands along the beach. On the

and their wholesale destruction by a frost a our climate, strikingly shows how simply, by slight changes of climate, induced by physical causes, whole races of animals may become extinct. It exemplifies, too, how destruction may fall upon insulated species, while from some peculiarity of habit, or some hardiness of constitution, their congeners escape."

Had the genial west instead of the dry east winds, constantly prevailed in England during the last winter, the atmosphere of that country would have been moist and warm as usual, and no such severe frosts as that described, would have been experienced. From these new facts, we can form some new and more correct ideas of the effects of winds and waters upon climates; and how they affect the destiny and welfare of nations, and living creatures, on the land and in the sea.

Discovery in Painting with Light.

On another page will be found a most interesting article from J. F. Mascher, Esq., of Philadelphia, on new and important discoveries made by him in prosecuting some optical experiments.

Photography has now become one of the most attractive and extensively practiced arts. It is but a few years since the discovery of the Daguerreotype was made in France-we all remember it well, and the wonder that was excited among us when it was first chronicled to the world that a Frenchman had succeeded in taking portraits by the sun. Since that period, the art has flown on the wings of the wind over all nations. There are now hundreds of artists in our principal cities; almost every village has its sunlight limner, and there are quite a number who travel from place to place with movable galleries, to rescue the charms of our village beauties from oblivion, by placing them upon enduring tablets. We look upon the art of photography as one of most delightful and humanizing. It has placed within the reach of the poorest, the means of conveying to one another, or to remote years, the likenesses of those they have loved and esteemed. This was a priviledge which but recently belonged only to the more opulent, who possessed the means to employ the portrait painter. Great improvements have been made in the art within a few years; photographic portraits are now taken, surpassing in correctness the skill of the most practiced portrait painters. And it is not to be supposed that we are at the end of improvement yet; indeed the article referred to on another page, shows us that a new and expansive field for improvement has just been broken.

found essential; **b** are two stirrups made of | be proud. We have been informed that this tute for wood fuel in locomotives, is a queswire bent up somewhat in the form of a buckle tion of great importance Many locomotives frame, and the two ends of wire thus bent up on various railroads, use no other fuel now, are sprung apart and inserted, one on each and the time is not very far distant when side or edge of the button near its center, in every railroad in our country must stop suitable holes therein, so that the spring of using wood. It is believed that many imthe stirrup itself holds it to the button, but provements have yet to be made in coal may swing thereon. It will be perceived burning locomotives, hence every new one that a button thus provided with the stirrups, deserves attention. In the list of claims as in figure 1, has no tendency to leave the this week, it will be observed that a patent bottle, whilst if desired to open the bottle it has been granted to Josiah J. Dutcher, of is readily removed by slipping one of the stir-New Haven, Conn., for improvement in coal burning locomotives, embracing three separups out from under the projection. Any inward pressure against the cork forces it rate claims. One covers an inverted conical ater chamber in the fire box, which commugainst the button, but as the stirrups pa ed by a purchaser. We believe that only beach below Portobello, and for at least a from a central position in the button to the nicates by pipes at its bottom with the side 2000 lbs. of coal have been given for a tun water spaces, and at its top with the usual sides of the neck of the bottle, the tendency is mile on the western side of the town, they weight, in this city, for some years past, are chiefly of two species, Solen Siliqua, or to draw the stirrups closer up to the projection, water chamber of the boiler, thus keeping thus making the customs of coal dealers the edible spout fish or razor-fish, and Macor in other words to hold the harder. c is a up a continual circulation, as this cone is here conform with the laws and customs of tra stultorum, or the fool's cockle, both of imbedded in the fire, and subject to the most strip of tin or other metal, hinged by a dead Pennsylvania. These State customs and them molluscs, which burrow in the sands eye to one of the stirrups. This being for the intense heat. It is also believed, that as this laws, being at variance with the Federal above the low-water line of stream tides. cone is inverted, it will prevent the fuel from double purpose of making the button a fixture laws, must be abandoned, as the Constitu-The spout-fishes, when first thrown ashore. packing close, and thus allow free draught on the bottle, viz., to prevent it from being tion of the United States gives to Congress were carried away by pail and basketsfull by through the fire at all times. The patent lost or wasted, and so that the cork may be the power to fix the standard of weights and the poorer people; and yet of their shells embraces other features, which could not be allowed to fly whilst the button remains atmeasures. Let each coal purchaser hereafter enough remain in the space of half a mile to clearly described without engravings. At a tached to the bottle. It is only necessary to see to it, that he gets 2240 lbs. for a tun, as load several carts; but the fishes themselves, meeting of the "General Railroad Associaslip one of the stirrups from the projection on his just due according to law. devoured by myriads of birds, chiefly gulls, tion," held in the Astor House, this city, on the bottle to remove it from the cork, and have already disappeared. It is probable the evening of the 10th inst., the subject of either of the plans as shown in figures 2 and that both species will be less common on our using coal in locomotives was partially dis- 3 may be adopted. Many devices have been coasts than heretofore, for years to come; cussed, and a resolution adopted appointing essayed for securing corks in bottles, but al town (Mass.) Navy Yard.

a committee, to report at the next meeting of them involve expense, intricacy, or diffifew degrees more intense than is common in respecting the introduction of coal and coke, and the construction of engines capable of using such fuel. This exhibits a proper spirit on the part of the Association, and as D. C. McCallum, Esq., Superintendent of the New York and Erie, is chairman of this Committee, we have confidence that the business will not be suffered to sleep, as is too often the case with members of associations, that provide no means for paying the expenses of those who perform extra



The annexed engravings represent an improvement for securing corks in bottles, for which a patent was granted to T. A. Ashburner, of the city of Philadelphia, Pa., on the 13th of last month.

Figure 1 is a view of a bottle corked on the patent plan; figure 2 is a view of one of the buttons provided with a strip of tin to prevent it from flying with the cork when the bottle is opened; figure 3 is a similar button without the tin strip. Similar letters refer to like parts.

The nature of this invention consists in the peculiar device hereafter to be described, to be applied over the top of a cork in a bottle to prevent it from flying out under inward pressure, the same consisting of a button provided with two stirrup straps which are hold under the projection on the neck of the bottle to hold in the cork, and may be swung out to release the cork, to let it escape, as may be desired.

a is a round button of about the size of the cork in the bottle, and made, for convenience, Coal Burning Locomotives. of wood, though it may be made of metal if The subject of employing coal as a substi-

culties in placing or removing them from the bottle.

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More information may be obtained by letter addressed to Mr. Ashburner.

Steam Carriages for Common Roads.

J. K. Fisher proposes, through the Westchester Journal, to build a steam carriage to run between certain villages in Westchester County and this city, on the common roads. He offers to pledge a gallery of paintings for the success of the undertaking, and he wishes the residents of those villages to form a joint stock company for the purpose of providing funds to construct as many of those carriages as may be found necessary to try the scheme. We really hope the people of the Westchester County villages will form such a company, and if they can be secured (as they should be) against loss, by the proposer, they should embrace his proposition. We have saidand are positive-that steam carriages cannot pay on our common roads; also that the accounts which have been printed of the performances of steam carriages in England were more highly colored than were those of the hot-air engines among ourselves, but if those who think they know better than we do about such things are willing to guarantee their success and provide some means to secure the stockholders in case of failure, who can find fault with the proposition? It is a fair one, and we above all other persons, hope it may be put in practice, in order to test the question by the only method of convincing without controversy.

Shawk's Steam Fire Engine.

The Cincinnati Commercial of the 31st ult., contains the report of a committee of citizens to witness the performances of a new steam fire engine, named "Young America," and built in the machine shop of Abel Shawk, and according to his patent. In this report it is stated, that in twelve minutes exactly, from applying the match, the engine commenced its work, and the pumping of water began. The first experiment was made by using a nozzle one and one eighth inches in diameter, playing horizontally, the water being thrown 210 feet. The next experiment was with a nozzle one and a quarter inches in diameter, in the same direction. Upon actual measurement, it was found that the water had been fairly thrown a distance of two hundred and twenty-nine feet and four inches. It also forced a stream of wahinged to said button, so that they catch and | ter through the 1 1.4 inch nozzle ten feet over the tower of the Mechanics Institute. 150 feet high, and had the wind not been so strong, it would have thrown the stream higher still. The Committee, after a number of experiments, unhesitatingly declared, they were perfectly satisfied, and considered the engine a triumph of which Cincinnati might engine is intended for this city.

What is a Tun Weight of Coal?

The Philadelphia Ledger of the 10thinst., informs us that the U.S District Court in that city, decided on the day previous, that the legal weight of a tun of coal is 2,240 lbs., and that coal dealers have no more right to give less weight than grocers to give less than 16 ounces for a pound.

The Supreme Court of Pennsylvania decided, a short time since, that according to the laws of that State, 2000 lbs, were a legal tun weight, and no more could be exact-

A breech-loading cannon was recently tried with considerable success at the Charles-