FACTS ABOUT CHEESE.

The Mohawk Valley has lost its rank as the center of the cheese industry of the United States. The new head center is at Wellington, Ohio. The surrounding country abounds in cheese and butter factories. The principal cheese man in the State, Mr. C. W. Horr, has his establishment there, and it is one of the largest in the country. In a recent interview with a correspondent of the Cleveland *Leader*, Mr. Horr reported a very active demand for cheese at satisfactory prices. The home consumption has been greater this year than last, and the demand for export has been much increased.

The April milk this year netted about 100 per cent more than last year, the May milk about 80 per cent more, the June fully 40 per cent more, and for July the estimate was 50 per cent more than for last year. The prospect for the remaining four cheese months was very good. The yield per cow has also been more than last year, though not quite so many cows have been milked.

The chief American cheese districts comprise a small portion of New York, part of the Western Reserve in Ohio, a few counties in Illinois, Kansas, Michigan, Iowa, Vermont, and Pennsylvania, and a good many counties in Wisconsin. New York, Ohio, and Wisconsin, lead in the order named. Wellington, Ohio, is the largest country market, as shown by last year's statistics. Little Falls and Utica, N. Y., stand next. Wellington shipped 1,500,000 pounds more butter and cheese than Little Falls last year, the total shipment amounting to about 9,000,000 pounds.

During the past five years about 110,000,000 pounds have been exported annually; the rest is consumed in the United States. Most of that exported goes to Great Britain, which in 1878 took over 120,000,000 pounds, and last year a much larger quantity. The foreign demand for American cheese is increasing, but not so rapidly as it did ten years ago. From 1860 to 1865, owing to the introduction of the cheese factory system in this country, the increase was tremendous. Since then it has not been so rapid, but it has been steady. The export this year has been larger than the last, but not so large as in 1878. Commencing with the last week in May, there were exported during the following eight weeks of 1878, about 807,000 packages of cheese; during the corresponding weeks of 1879, about 528,000 packages, and of 1880, about 635,000 packages.

The foreign trade in American cheese is almost exclusively for what is called factory cheese, and covers every grade and quality, from the poorest skim milk cheeses to the richest full creams. The bulk of the poorest grades of cheese made in America goes to England, where the poorer classes use it in place of meat. Were it not for the market thus furnished for the cheaper grades of cheese the enormous May, June, and July makes of American cheese would have to be thrown to the fishes or sold at nominal prices.

The export of butter is also increasing rapidly. During the past two or three years there is an increasing demand for the very best creamery butter. "We have within the past six weeks sold nearly $7,000 worth of the finest creamery butter to one Liverpool house," said Mr. Horr, "and such a sale as this, until within the last three years, was unheard of in Ohio. This butter is shipped on a through bill of lading from Cleveland to Liverpool."

ARTIFICIAL COLD.

While sweltering under the relentless summer's sun people delight to talk about the production of cold, as if cold were a real substance, and just now a very desirable one. Not many years ago, when the caloric theory prevailed, we were told that heat was a substance, and cold was merely the absence of heat. The present generation of philosophers tell us that heat and cold are only sensations due to a more or less rapid vibration of the molecules. Although we willingly accept Tyndall's assertion that heat is only a mode of motion, which seems to be confirmed by the fact that the more we move about the hotter we get, yet it scarcely makes us any more resigned to our sweltering fate to know that the difference between summer and winter is merely a question of velocity in molecular motion. We read of the numerous icebergs that float down this way, and wish we had built our summer residence on top of one.

A correspondent at Council Bluffs sends us a refreshing account of a car which came in on the Chicago and Northwestern Railroad, the axle laden with icicles several inches long and the running parts covered with solid ice, which had formed there with the thermometer at 86° in the shade. The mystery is soon solved when he tells us that the car was loaded with gasoline, which was leaking through the bottom of the car. Gasoline, being extremely volatile, of course evaporated with great rapidity, and thus produced, as every volatile liquid does, a diminution of temperature, a principle made use of in all ice machines.

When a solid body passes into the liquid state a large quantity of heat is rendered latent, hence when any two solids (like salt and ice), which form a liquid when brought into contact, also reduce the temperature, on melting this heat is again set free.

A similar amount of heat is rendered latent when a substance passes from the liquid state to that of gas or vapor. This quantity of heat must be derived from surrounding bodies, and their temperature is correspondingly lowered. As a general rule the lower the boiling point of a liquid the lower the temperature that can be produced by its evaporation. Rhigolene, a petroleum product more volatile than gasoline, has been used with success in ice making. Ammonia and sulphurous acid gases, which are not combustible and therefore not explosive if mixed with air, are generally preferred. Nitrous oxide and carbonic acid gases, which are condensible only by very high pressure, are employed for obtaining very low temperatures. The former of these gases is now sold in large quantities in liquid form, and when allowed to escape often freezes in the escape pipe, beside covering the surroundings with ice, as did the gasoline at Council Bluffs. The evaporation of liquid carbonic acid produces a sufficient degree of cold to freeze the remainder of the acid, which then melts very slowly at ordinary temperatures and is at once volatilized. Liquid oxygen and hydrogen produce the most intense cold known by their evaporation.

The production of ice by the evaporation of gasoline is not so rare, however, as our correspondent supposes. A barrel of gasoline exposed to the air on a warm summer day frequently has a crust of ice or snow around the bung and wherever any escape of the gasoline can take place. A current of air blown over the surface of a volatile liquid causes it to evaporate more rapidly, and in the case mentioned above such a current was caused by the motion of the train. As soon as the surfaces were cooled below the dew point, moisture from the air began to be deposited, which was frozen when the temperature reached 32° Fah.

Many of our dwellings, our offices, our schoolhouses, and public buildings are supplied with complete sets of pipes and radiators for steam heating. In our climate these are seldom used from May to October—nearly half of the year. Will not some of our inventors devise a method of utilizing these costly pipes for cooling the air in summer? It could not be done by forcing a stream of gasoline through them, because this only reduces the temperature where it escapes into the air, and to allow it to escape would be to fill our houses with a poisonous, explosive, and bad smelling demon. Preferable would be a system whereby air could by any of the well-known principles circulate in our radiators and finally escape if pure, but return to boiler if impure. Perhaps some neutral liquid, which would neither freeze nor attack the radiators, could be made to flow through the pipes. This liquid passing through a coil of pipe surrounded by a suitable refrigerating substance would carry its cold freight to every part of the house. As cold liquids sink it might be necessary to put the refrigerating machinery in the garret instead of the cellar. If cold air were used this would be unnecessary.

We shiver with pleasure at the thought of being able to break off icicles from the dining room radiator, or scrape off enough snow from our office radiator to make a snow ball to throw at the luckless small boy or delinquent subscriber and merciless devil. We could laugh at the ice cream dealer, for we could bake our own cream in our cold oven, and ice would be an unnecessary luxury, for we need only set the water pitcher on the radiator to convert the croton into sparkling spring water.

The quantity of coal required to cool a house in summer need not exceed that required to warm it in winter, while the saving in doctor's bills, in profanity, and traveling expenses would be no small item, to say nothing of being able to freeze out the mosquitoes and benumb the flies.

Where is the genius who will solve the problem of house cooling and eclipse the fame of Carré, Pictet, and the rest of the ice makers? What delightful essays would our daily editors write in their cooled sanctums, and how many free puffs would they unconsciously bestow on this lucky inventor! New York would no longer be depopulated in summer and business would flourish the year round.

Effects of Lightning.

Mr. J. Johnstone writes to the Edinburgh *Daily Review:* "On the 7th of July, about 4:15 P.M., the lightning struck the craig which is named on the plan of Edinburgh "The Dasses," which overhangs the Hunter's Bog on the east. The rock struck is of the hardest basalt, commonly called whinstone. The lightning did not strike the sharp, serrated front edge of the craig, as might have been expected, but, on the contrary, it struck the flat top covered with sod at a distance of three feet from the present edge, and that must have been between six and eight feet from the edge before the accident, for the lightning detached several tons of the rock from the front of the craig, and sent six large masses of rock down into the Hunter's Bog; the largest of these measures four feet long by three feet broad and one foot thick, but of irregular shape. On the edge of the craig the lightning detached a mass of rock, which now stands in a very precarious position. This large mass measures four feet nine inches long by three feet broad and one foot four inches thick. The top of the craig, a short distance from the front of it, is covered with a coating of angular pieces of basalt, and on the top of these a covering of sod. It was on the sod the lightning struck, and made a hole two feet six inches long by one foot six inches broad. On placing a compass near the hole made by the lightning I found that the needle deviated from the N. to the E., and when the compass was in the hole the needle stood at E.S.E., instead of N., proving that the rock is still powerfully electrical at the spot where the lightning struck it. But, except in the vicinity of the hole, the craig does not affect the needle."

The American Science Association.

The annual meeting of the American Association for the Advancement of Science will begin at Boston, August 25, in the Massachusetts Institute of Technology.

RECENT INVENTIONS.

An improved railroad rail, intended to prevent the noise produced by its vibrations, has been patented by Messrs. Henry V. Piaget, of Jersey City, N. J., and Frederick A. Piaget, of New York City. The invention consists in applying a thick layer of cement or like material to the sides and bottoms of the rails, and fastening strips of wood to the sides and bottoms of the rails by means of the cement, thereby preventing the emission of sound by the vibrations of the rails.

Mr. John L. Taylor, of Las Vegas, Territory of New Mexico, has patented a telegraph pole that is more durable and lighter than ordinary poles, while having the requisite strength.

Mr. Nicholas Boren, Jr., of Haubstadt, Ind., has patented a novel arrangement of a churn dasher rod and a series of shafts and band wheels, and a drum and weight, whereby provision is made for obtaining a rapid movement of the dasher.

Mr. John H. Hodges, of Attleborough, Mass., has patented a separable button, which consists in a curved wire catch combined with a cup having a short beveled end lip and a protruding end, with opposite springs arranged between the side of cup and the curved parts of catches.

An improved ladies' dress guard, which will prevent the dress from clinging to and exposing the form when walking against the wind, has been patented by Tom O. Memery, of Key West, Fla. It consists of a rounded garment, stiffened by a number of flexible strips running from top to bottom. It is worn over the abdomen, and is held by bands passing around the waist.

An improved car coupling has been patented by Mr. Jesse T. Rice, of Grand Rapids, Mich. The invention consists of a novel combination of devices, which cannot be clearly described without engravings.

Mr. Abraham F. Denlinger, of Jamton, O., has patented an improved gate, so constructed that it can be opened and closed by the wheels of a passing vehicle. It is simple in construction and not liable to get out of order.

An improved blacking brush holder has been patented by Mr. Henry B. Perham, 665 West Lake street, Chicago, Ill. The invention consists in securing blacking brushes for transportation or packing in trunks with wearing apparel by an incasing crossbelt, which not only retains them in a compact form, but incases them so as to prevent the surrounding articles from being soiled.

A light, strong, and durable fence, which is easily set up, taken down, and moved from place to place, and is inexpensive in manufacture, has been patented by Mr. Henry E. McWhorter, of Blooming Grove, Ind.

The combination, with a map, of index sheets secured by their upper edges to the map roller and pendent on the side of the map, has been patented by Mr. Orson S. Haskell, of Evanston, Ill.

Hell Gate Improvements.

During the past year 15,195,561 gross tons of rock, the *débris* of the Hallett's Point explosion of 1876, have been removed under contract by the Atlantic Dredging Company, making in all 72,084,078 gross tons. The reef, for one-third of its extent, has a depth of twenty-six feet at low water. Over the remaining area there are a few shoal points still to be removed, some of which, near the shore, have only about seventeen feet at low water above them. The work is approaching completion, and progress is necessarily slower. The contract of the Atlantic Dredging Company has been extended to December 31, 1880, when it is supposed the work will be finished.

The work on Flood Rock, suspended since 1878 for lack of appropriations, has been resumed and is progressing satisfactorily. It is expected that the entire excavation will be completed within three years. A part of the rock taken from the galleries has been deposited in a deep hole off Ninety-second street, and another portion dumped in a dike closing the interval between Great and Little Mill Rocks, thus forming the western side of the new channel, improved by the removal of the reef at Flood Rock. This dike formed a part of the original project.

The drilling scow, recently employed on Diamond Reef, will be used on Frying Pan, Heel Tap Rock, and Pot Rock, which, with Flood Rock, forms the only barrier to a free use of the channel at Hell Gate.

A Natural Gas Well near Boston.

A notable discovery is reported from Ocean Spray, a new summer resort near Boston, Mass. While a driven well was being sunk, July 22, a vein of natural gas, which burns with a clear brilliant light, was struck at the depth of 122 feet. Being so near the house of Deacon Augustus Reed as to endanger its safety, the blaze was smothered and the well abandoned.

The adjoining lot was owned by Mr. J. H. Jessop, who, thinking the gas worth boring for, had another well driven. Gas was struck July 30, and since then the flow has been abundant and strong. Mr. B. R. Sturges, of South Boston, writes us that the pressure of the gas was measured August 5 by the State Gas Inspector, and found to be that of 31¾ inches of water. Photometric tests made by the Superintendent of the East Boston Gas Works showed the gas to be of 14 candle power, giving a pure and brilliant light with various styles of burners. An attempt will be made to utilize the gas for illumination, cooking, and heating.

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