

For the Scientific American.

Ice Made by Mechanical Power.

Numerous brief, but, unauthorised notices of a machine, devised in this city and constructed at Cincinnati, for manufacturing ice by mechanical agency, have been already given to the public. As is too common, under the impulsion which newspaper reporters feel, to make captivating paragraphs about a thing new or rare, or the delight which an interested party experiences at, first observing a prospect of realizing great expectations, these notices have been highly exaggerative. I had the pleasure some little time ago, of enquiring into the principles on which the utility of this machine is based, of examining its construction, receiving an explanation of its mode of operation, and of seeing some of its effects. The study of mechanics being a favorite occupation of my leisure hours, while that of chemistry is intimately connected with my business pursuits, I may, not unreasonably lay some claim to a knowledge of these sciences.

This invention, then, I find is not purely mechanical, but is based upon both mechanics and chemistry; and if I have not over estimated my capacity to judge of its merits, I may state that it will be found to stand the test of practical utility, answer the rational purposes for which it was intended, and supply one of the most important wants of mankind. At any rate in the account of it I shall give, I shall state nothing which my own observation does not represent as fact, or from which a rational deduction does not warrant the conclusion I shall draw.

The invention is certainly remarkable for that happy inspiration which has brought a few simple natural laws to a highly utilitarian purpose. If it were not for the evidences of ingenuity displayed in the combination and proportion of its various parts conjoined with the negative fact that nothing of the kind appears to have been noticed in the records of science, I could not persuade myself that so obvious a means of clearing a wide field for profitable operation had not been, long since discovered. It comprises a beautiful and comprehensive system of equivalents by which very great mechanical and chemical effects may be obtained with comparatively little, or the least possible consumption of mechanical power, or waste of chemical action. Essentially it consists of two simple agents—a force pump in which air is divested of latent heat by mechanical compression, and an engine in which the same air is made to operate expansively, and, in the process, absorb from water to be frozen, the heat due to its increase of volume. But there are several auxiliary agents for giving the simple contrivance its highest effective utility. Thus, by the obvious arrangement of attaching the pump and engine to the opposite end of a common beam, the mechanical power consumed in condensing air in the pump is to a considerable extent recovered in its expansion in the engine. At the same time the heat evolved by the compression of the air is extinguished by a jet of water thrown into the body of the force pump by means of a smaller pump; while the heat necessary to impart to the expanding air the elasticity and mechanical force due to its quantity and volume is furnished through a similar pump, which takes from a cistern a portion of liquid, and, after injecting it among the expanding air in the engine, returns it to the same cistern. This cistern thus operates as a reservoir of cold, and as the sufficient means of abstracting heat from water, which is to be converted into ice, and which is immersed in it, suitable vessels, for the purpose. Pursuing this system of compensatory equivalents the inventor proposes, in the practical application of his principle, to use the same air over and over again an indefinite number of times. He can thus attain the two objects of employing air, which previous condensation has deprived of heat and subsequent expansion has left at a lower temperature than the atmospheric, and which is divested of the corrosive action of its oxygen.

I do not deem it proper to go into further explanatory details of the means by which the valuable results of the invention are to be obtained, because, I understand much money has been expended by a few enterprising merchants

of this city, in enabling the inventor to make the experiments necessary to test its utility, and it is right that they should be allowed to choose their own time and mode of giving what publicity to them they please. I will, however add, that the machine already made is an experimental one, is perhaps unavoidably, very imperfect in plan and execution, and certainly admits of great simplification as well as other improvements.

The present usefulness of this noble invention has been impaired by absurd stories being allowed to get into the newspapers about its capacity, to produce ice in vast loads at a time, in large blocks in a few seconds, and at a cost of manufacture which enables the proprietors to furnish it in any part of the world at a dollar a ton. It would be evidence of a vast addition to the comfort of mankind if it could be shown that the principle admits of its being applied to the production of ice, within the tropics, at a less price than it can be imported from nature's great laboratories. For this degree of capability the inventor contends; nor is it incompatible with a fair examination of the principle or the actual results of experiment. Gay Lussac has long ago shown, that the quantity of heat evolved by the compression of atmospheric air is prodigious, and as it follows that the heat absorbed in expanding from this compressed to its previous condition must be equal, it is only necessary to prevent a waste of this action, to be able to obtain the effects of a prodigious quantity of cold. The materials employed are every where very cheap ones of air and water, and if the refrigerative effects of the principle is capable of producing upon them can be obtained with a small consumption of power, and that power steam, or one equally cheap, it must be apparent upon the slightest reflection that ice can be manufactured at a comparatively small cost.

Supposing the above position to be correct the invention admits of an application to an infinite number of the purposes of life, of even more value than the manufacture of ice within the tropics. Indeed, as there is, at this day, no want of humanity greater than a means of producing cheaply an abundance of cold, so, if this desideratum is attained by this invention, science has never made to art, a present of more beauty, value, or general utility. Experiment certainly shows that the rude and imperfect machine already constructed is capable of lowering a large quantity of matter from a temperature of 90 deg. F to 5 deg. or even 6 deg. below zero, and of maintaining it at the latter temperature, an indefinite length of time with little cost of power, and it is therefore obvious that it could be applied to the preservation of all animal, and those articles of vegetable food that are destroyed by atmospheric heat. But the most important and grand object which directed the inventor to the invention, is its applicability to the prevention of disease. It seems to be conceded by medical men, that there is an intimate relation, perhaps as close as cause and effect, between high natural temperature, and yellow and other malarial fevers. If, then, we can exert such a control over temperature as to be able to reduce it, within the spaces in which men pass their time as in a dwelling, hotel, hospital or fortress, and more particularly in their sleeping apartments, to a degree below that at which these diseases are generated, we shall inevitably lessen, or perhaps prevent their liability to them.

The originator of the proposed method of accomplishing these great objects is an old friend (Dr. John Gorrie of Florida) from whose moral and intellectual qualities we have the highest confidence, any statements to which he may give publicity, regarding the value or general merits of his invention, will stand the test of experiment. Independent of the opinion I have expressed, several persons, eminent from their position in science, have become interested in a scheme, which in its possible, or even probable applications, may modify the existing relations of the inter-tropical regions to the rest of our globe, and after examining the principle and its operation, have expressed the belief, that our friend has succeeded

ed in a very important undertaking. As evidence of faith in its practicability and value, and in confirmation of my views, it may be mentioned, that several persons well known in this community for their shrewdness and business talents, have not hesitated, as already mentioned to furnish the capital necessary, for conducting a very expensive course of experiments. J. C. C

New Orleans, September, 1849.

Parisian Cleanliness.

In Paris every species of refuse is husbanded in the most careful manner. No refuse is allowed to be thrown into the streets after a very early hour in the morning, nor until after 10 o'clock at night. The refuse consists of what may be called house dirt, &c., is laid in heaps in front of houses near the gutters. A very numerous class of people, chiffoniers, consisting of as many women as men, with deep baskets on their backs and a small stick with a hook at the end, carefully turn over every one of these heaps selecting every particle of leather, bones iron, paper, and glass, which are thrown at once into their baskets and being carried to their places of general deposit, are there again examined, and sorted, and appropriated to any specific application for which they may be suited. These persons appear like a most degraded class; they inhabit particular quarters of the city, and the interior of their habitations is such as might be expected from their occupation. The profession descends from father to son, and from mother to daughter. They are a most industrious race of people, and many may be seen at midnight with their lanterns, taking advantage of the first pickings, and anticipating the labors of the coming morning and with the earliest dawn they are to be found at their tasks. No article of food escapes them, and they call the street their mother because she often thus literally gives them bread. Though their occupation is necessarily dirty, they are almost always comfortably clad and are never ragged. They never beg, and disdain to be considered objects of charity.—They are licensed by the city authorities, for which some trifling sum is paid, and for which they must be recommended for sobriety, and good conduct. They have their particular districts assigned them, and are very careful to prevent all foreign intrusion.

The chiffoniers having done their work, next come to the sweepers and collectors of dirt.—Every inhabitant of Paris is required, under a penalty, to have the side walks in front of his place of business or residence, carefully swept every morning. The sweepers of the streets of Paris are almost uniformly women, who with long twigs or birch brooms, sweep the streets thoroughly, and all the accumulations are taken in carts to the great place of deposit.

The women assist as much in loading the carts as the men. These women appear to work extremely hard, carrying always a long broom in their hands and a shovel fastened to their backs to be used as occasion may require. The gutters in Paris are washed out every morning, by fountains which are placed in every street, and what the sweepers are not able to collect for the carts, they are careful to sweep into the drains leading into the common sewers. I have looked at the people and the chiffoniers with great interest; and, filthy and disgusting as their occupation necessarily is, I have always felt in my heart a sincere respect for persons poor, as they are who are ashamed to beg, and who, by the severest and most useful labor, are proud to obtain for themselves and their families, though a very humble yet honest living. All this refuse is transported to places appropriated for its deposit, where it remains until it is decomposed, and is then sold to the farmers for manure.

[The above is taken from Colman's Tour of France, and without making much ado about it, the same sight for a foreigner to write about, can be seen in New York City, with the exception of the women loading carts, and the entailment of the rag picking business. Some things can be seen at home to write about, just as wonderful as those abroad, but it is no uncommon thing for people to be well versed with foreign notions who are totally ignorant of things at home.

Singular Fact Connected with Cholera.

The following from the St. Louis Union, Mo., is something worth of investigation, and is at least, a subject for wonder.

The town of Hillsboro, Mo., lies about forty-five miles south-west of St. Louis. That town and region of country were entirely exempt from cholera until two or three days subsequent to the 2d of July, when it broke out with great virulence, carrying off many of the inhabitants of the place.

It will be remembered that on Saturday night the 2d of July, we had the streets of this city illuminated with innumerable bonfires, for the purpose of freeing the city of cholera. For several successive days prior to this, the wind had blown from the south-east, but on the following evening, it veered round and blew from the north-east. We learn from reliable authority, that directly after the wind shifted, the fumes from the tar and stone-coal used in the fires here, were distinctly smelt by the inhabitants of Hillsboro, and in a day or two after, the cholera made its appearance in the town; and now, since the disease has left the country, and people have commenced once more to move about and inquire into past events, it has been discovered that the cholera swept like a tornado in a direct line from the city to Hillsboro, and onward a distance of thirty-five miles beyond, confining its ravages to a tract of country not more than three or four miles in width, and extending in a straight line about sixty-five miles to the south west. The line includes the coal mines near our city, where the disease was awfully fatal, and from that point onward to its termination, it decreased in its ravages, and after passing Hillsboro, rapidly so. The cholera did not make its appearance on any of the public roads, through that region of country, except where they intersected this tract through which it passed, and at these junctions it was frequently very bad.

Discoveries in Africa.

A French exploring expedition has partially ascended the Grand Bassam river in Africa, and has discovered it to be a confluent of the Niger. Captain Boilet, the commander of the expedition, writes, that he has discovered two magnificent lakes, where palm oil is so abundant that the ship had not vessels enough to hold it. Now, according to the dealers themselves, palm-oil gives a profit of 80 per cent., whilst gold only yields 50 or 60. The adjoining villages are said to overflow with produce of all sorts. Captain Boilet has, however, visited unknown regions, and established relations in the midst of a country the very centre of the gold trade, the only commerce hitherto carried on at Grand Bassam. It being the dry season, the want of water prevented its entire exploration, but in the rainy season there are six feet of water, and the river may be ascended as far as the cataracts of of Abouesson, 50 leagues distant. At that place the traveller is within 60 leagues of Segou, and the course of the Niger is still continued. When the steamer Gettander proceeds to Grand Bassam, that vessel, which only draws two feet of water, will entirely solve the problem. Thus, a well-armed and well supplied vessel will penetrate to the interior of the country, traversing a district of which Captain Boilet has seen a part of himself, and which is the entrepot and passage for the caravans of the gold and the silk merchants, and where the gallant captain discovered, and inhabited for two days, a city more ancient and more important than Timbuctoo. "I might write a volume," concludes the letter, "were I to attempt to relate the dangers and adventures of the expedition."

History of Propellers.

It is our intention to illustrate a history of the various plans that have been proposed and brought forward, to propel vessels, both paddles, and other contrivances. It will be the best and the alone history of propellers (an extensive name) in the world. Those who subscribe for this volume, will possess in the single history of propellers, a work which cannot be obtained any where, in a collected form. We have sources of information opened of a very extraordinary character.