TO RIVAL COAL AND WOOD.

ICE-AIR WILL COOL OUR HOUSES IN MIDSUMMER.

It Will Be Done as Effectually as We Now Warm Them in Winter — Artificial Refrigeration—Practical Tests—Discovery of a Spanish Physician — Cold Will Kill Out the Microbes of Disease.

During the progress era of the last hundred years architecture has kept up with the advance of other mechanical industries; still all Northern Europe and North America must plead guilty to the charge of building dwelling houses in a manner ingeniously contrived to make winter more comfortable and midsummer more afflictive.

And that affliction is by no means limited to the homes of the poor. Not in the slum tenements of sweltering Southern seaport towns only, but in many Western and Northern abodes of wealth, the martyrdom of the dogday season reaches a degree of grievousness unknown to the children of the wilderness, and the time will come when the historians of civilization will marvel at our stolid submission to an after-all wholly remediable veil, as we marvel at the shiftlessness of savages who shiver in rawhide tents, rather than go to the trouble of building cabins and fire chimneys.

Moreover, we have not even the excuse of the ancient nations to whom the plan of a smoke-conducting flue was actually unknown, and who, had to content themselves with warming their hands over a brazier of glowing charcoal. In 1878 a chemist of the Government arsenal of Toulon, France, got his superior's permission to assist in the construction of

AN ICE FACTORY

And was surprised to notice how promptly the influence of cold air remedied all sorts of ailments brought on by the intense summer heat of that year. His headaches subsided; he could work with less fatigue and eat his supper with an improved appetite. "An admission ticket to the big ice vault," he says in a pamphlet on artificial refrigeration, "is worth a voyage to Trouville sur Mer; you feel as if nature had wrought a miracle for your benefit, and mitigated the bake-oven heat o fJuly with the interposition of a cool October day."

It was with extreme reluctance that the Government chemist went back to his drudgery in the cartridge shop, but his despondency was cheered by a bright idea: If he could not return to the pleasant ice vault why not bring an ice vault to the arsenal and turn general misery into wholesale comfort?

Enthusiasm is contagious, and Captain de Lamotte got permission to try. He was a professional engineer, as well as chemist, and soon improved, on his plan, of a subcellar sanitarium. By a system of pipes and force-ventilators he conducted currents of ice air into several second-floor offices, and by and by into every workshop, storeroom and laboratory of the vast building. Down in the ice vault the mercury shrunk close to the freezing point, but in transmission to upstairs apartments the currents of winter weather could be regulated to suit individual predilections. July could be turned into May or March. But by continuing the process at a maximum rate of influx the temperature of a good-sized hall could be reduced sufficiently to

KEEP FLIES FROM BUZZING.

The air of a very roomy office was made as pleasant as a mountain spring, while the outdoor atmosphere was broiling away at 96 degrees in the shade.

The sick rate decreased 40 per cent. and several discharged workmen actually begged permission to revisit the workshops and make themselves generally useful to pay for the privilege of getting the benefit of the cool air. After experiencing the comfort of the simple remedy the affliction of their stifling tenements had become unendurable. It was like having to go back to the winter dugouts of the stone period, after having known the benefit of a good coal stove.

Outsiders, too, become interested in the experiments of the Government climate-maker, though, as usual, the voice of public opinion was at first averse to the idea of an innovation. "These men will all catch their death of cold." croaked the old foggies. "They will catch rheumatism and consumption and ought to sue the Government for damages. I would as soon let them persuade me to work in a smallpox hospital," &c.

But after a thousand convalescents had become enthusiastic partisans of the new arrangement, the logic of experience prevailed, and a Toulon hotelkeeper established an ice air restaurant that soon became the most popular pleasure resort in the city. Who would feel his blood seethe if he could purchase the delights of a highland camp for a couple of dimes? That crazy twin brother of the night air superstition, the delusion that trembles at the ideas of cold water drinking in the heat, has its apologists even onm lecture platform, but in

OPPRESSIVELY WARM WEATHER

the sight of a lemonade booth offsets all their eloquence. In progressive countries the arsenal contrivance found not only recognition, but imitation e.g. in the Polytechnic School of Brussels, in two of the principal hotels of Santiago de Chili, in the Washington House of Representatives. Mule-headed conservation alone has prevented the general introduction of the most beneficial invention of the last 200 years, but its opponents can no longer defend their position on a basis of sanitary arguments. A hospital physician of Santiago de Cuba convinced himself, and before long all his neighbors and visitors that ice-air is nature's remedy for a large number of climatic disorders, including that scourge of the tropics, yellow fever, in its most malignant forms and in all but its last stage of development.

Reasoning from the familiar fact that fevers are rarer in high latitudes, and more frequent in summer than at any other time of the year, it occurred to him to "try the effect of an artificial winter." In his capacity of manager of a large fever lazaretto he surrounded one of the northside wards with blocks of ice till he had reduced the temperature some 40 degrees, and in defiance of hearsay prejudices, instructed his attendants to bathe he temples and wrists of their patients with towels soaked in ice water. The old plan consisted in clapping the patient in a sweat box, stuffing him with drugs and letting him drink nothing but warm barley broth, and there is an anecdote of a sailor to whom the horror of approaching death suggested the means of self help. His impassioned appeals for a cooling beverage had been answered with threats of a straight jacket, but one night, when the candle burned low, he got out of bed and tiptoed his way to a chamber where his slumbering nurse kept a

PAILFUL OF ICE WATER.

The ice had not yet all melted, and he drank and drank till the pail was almost all empty. Then, snatching a piece of ice, he squatted down near an open window and rubbed himself all over, till he felt that a new lease of life had been secured, and that his fever microbes had beaten a retreat. To obviate a relapse he dressed himself as quickly as possible Gand slipped out into night and darkness. His doctors ascribed his escape to temporary insanity, "caused by after effects of quinine," but about a week after they found the supposed corpse dancing a hornpipe, and in as satisfactory a state of pipe, and in an satisfactory a state of helath as she had ever enjoyed in his life.

And only about a year ago a correspondent of a French medical journal called attention to the remarkable effectiveness of ice air for the cure of dyspepsia. Having noticed the ravenous appetite of a dog that by some accident that had been locked up all night in the storeroom of an ice factory, he conceived the idea of improving his own digestive vigor in the same manner, and got permission to enter the refrigerator, dressed like Nansen for a tussle with the North Pole. During the preceding eight months he had in vain tried every dyspepsia cure he could hear of, but after breathing an air that seemed to come straight from the haunts of the fur-seal he felt that he could do justice to a full-sized dinner, and soon got so anxious to try that he emerged before the end of half an hour and made a rush for the next restaurant. The waiters, who had known him to taste a dish here and a piece of cake there and then leave with a sigh of regret were surprised to see him eat as though he must have been West and lost his way in the

PINE FORESTS OF NORMANDIE.

Besides, the new specific worked without the least appreciable bad after effect. Blue pills will irritate the alimentary organs into a feverish activity followed by a depressing reaction till at last the jaded organism sinks into a torpor that defies the resources of a drugstore. But ice air begat an appetite, which, like love, dares all things and endures all, and it then occurred to the experimenter that cold weather has an exactly analogous effect on the habitual gluttons of the Arctic circle. After weathering an undiluted blizzard a tribe of Melville Islanders can devour a walrus, blubber and all, and wind up with a couple of Moravian missionaries and business considerations have obliged Swiss landlords to exclude Oberland hunters from the privileges of the table d'hote; they have been known to use a tablespoon, instead of a fork, and continue to help themselves till additional supplies had to be procured from a rival establishment.

The idea of utilizing that plain hint of Nature must have occurred to thousands of Southern dyspeptics but the idiotic dread of cold draughts nipped all their projects in the bud.

Yet there is no shadow of a doubt that sleeplessness, chronic headaches and biliousness could be relieved by the same prescription that cures languor and lack of appetite. Among the natives of the highest habitable latitudes even consumption is known only from hearsay, and a general revision of our medical system may follow the recognition of the fact that human beings can easily

SURVIVE A DEGREE OF COLD

that will kill out the microbes of nearly every contagious disease—smallpox, perhaps not expected. A few years ago a batch of patients were taken out to the pest-house on one of the Bay Islands, near San Francisco, and in a sudden squall the man at the tiller-ropes slipped his hold, and five smallpox patients were pitched overboard.

They were rescued with difficulty, and for nearly an hour were exposed to a keen Marc kwind almost freezing the water dripping from their soaked clothing. Judging from prevalent notions their chances of recovery would have been slim, indeed, but all five left the hospital cured, three weeks ahead of their fellow-patients. One independent inquirer of the last century, Dr. Albert Sydenham seems to have anticipated that discovery, and in his treatise on the cure of smallpox advises to reduce the temperature of the fevered patient in every possible way, by cold sponge baths, drinks of cooling beverages and cataplasms of crushed ice.

It is, indeed more than probable that the hospitals of the future will be ice-houses, but the chief value of the refrigerative plan is, after all, its effectiveness as a remedy of domestic discomfort. It is not too much to say that its skillful application will turn city life in midsummer from a fearful affliction into a blessing, and that with its aid the tenants of an ordinary town cottage will be out and out more comfortable than the guests of a fashionable summer resort under present circumstances.

Dn outdoor laborer, who has been at work all day in the sweltering sun will gloat over the prospect of getting back to his bracing cool home as a half-frozen hunter would rejoice at the thought of his return to a snug chimney corner.

ON EXTRA UGLY DAYS

experimenters will chuckle at the idea of beating the Dog Star Demon at his craziest tricks and turn on cold air enough to make a pail of stale water as drinkable as a highland fountain, just as De Quincey with a store of good fuel and double-screened windows, liked to see the blizzard fiends try their worst, and answer their raging howls with a whoop of defiance.

No more melting butter and dripping sausages, weary afternoons and dreams of Purgatory; there will be parlor refrigerators and municipal ice-air companies with a network of pipes, and for a few pennies each housekeeper will be able to reduce the indoor climate to the exact temperature which the sunscorched Bedouin expects to find on his arrival in the shady bowers of Eden.

MESSAGES THROUGH AIR.

SUCCESSFUL TESTS OF THE WIRELESS TELEGRAPH.

Wonderful Invention of a Young Italian — His Explanation of the Mystery — Soon Telegraph From Europe to America.

Great interest is being taken abroad in telegraphing without wires. The inventor of the system is Gulielmo Marconio, a young Italian, whose experiments have astonished the scientific world. Sig. Marconio gave the following statement the other day to a correspondent at Rome:

"Electricity, which is so docile when produced by ordinary methods for the purpose of sending it along copper wires to its destination, or for transforming it into light, heat or movement, can become nervous when the current is forced to oscillate in a conductor. Let us compare the current to human patience. If you compel a poor wretch to go backward and forward for an indefinite number of times he ends at last by manifesting outbursts of insanity. Hence in obliging the current to go backward and forward 250,000,000 times in the space of a second it becomes something quite different.

ITS VIOLENT OUTBURSTS

Are styled an electric wave, and the apparatus which produces the wave is called the oscillator.

"In order to make my meaning clearer, I might say that the electric wave resembles the sound which is produced by a vibrating blade and it has all the modulations of sound, from low to high tonality.

"The electric wave has also an analogy with light, and like that it can be reflected, intercepted, etc. The same wave can pass through space and through matter, and it is transmissible by night and by day, in wet or in fine weather. This is the preface. And now to understand wireless telegraphy is easy enough. Just imagine an oscillator, which is merely an apparatus by which the current produced by a battery or an influencing machine oscillates 250,000,000 times a second and produces the electric wave; now, imagine a copper mirror which gathers up these waves in order to assign them a direction and you will have an essence of vitality thrown into the invisible, to be there picked up and induced to influence another apparatus, which is called the resonator. This resonator can be placed at the distance of several kilometers, and in a spot invisible from the place where the electric

WAVE HAS ORIGINATED.

"The resonator is an apparatus which one can compare to an electric eye, because under the influence of electric rays it causes a hammer to vibrate against a crystal tube, which contains a coating of metals so arranged that under the influence of the waves they can vary the current which produces the oscillations of the hammer. Up to the present transmissions without wires have been effected up to a distance of 15 kilometers."

"Do you think it will be possible to obtain transmissions over distances greater than 15 kilometers?" he was asked.

"I am sure of it. The distances will increase in proportion as it is possible to augment the force of the electric current and the resistance of the apparatus."

"Do you think it will one day be possible to telegraph from Europe to America?"

"In my opinion the time is not far distant when it will be possible to do so. In the meanwhile I hope in a few weeks' time to be able to station apparatus close to our shores of the English Channel, so as to communicate between France and Great Britain."

"Are you of the opinion that the propulsion of a powerful electric wave could cause damage to war ships?"

"This would certainly not happen. I have obtained from Signor Brin permission to make experiments on the fleet, and you will see that the results are satisfactory."

During recent trials of the wireless telegraph at Spezzia, made on land at a distance of 19 kilometers, messages were successfully sent and received. Tests of the system were also made at sea between two war ships perfectly equipped and moving in opposite directions. A distance of four kilometers the wireless system worked perfectly.

FOR INDIGESTON.

Among the many remedies for indigestion is the agreeable one of the rocking chair. An excellent medical authority declares that the slow,, rocking motion after meals stimulates the digestive functions and gives marked relief. The patient ought to be placed in an almost horizontal position.

AGRICULTURAL.

A SERMON ON HOGS.

"Why do my hogs lie down and die so easy?" is a question heard on every hand. The reasons are very simple. In the first place the hog leads what may be termed a fast life. His digestive apparatus works at white heat all the time. In from twenty-five minutes to an hour he will digest food in its raw state that would take a healthy man's stomach from six to nine hours to digest, after it had been properly prepared for human use. The constitution of the hog is based on his powers of assimilation. The economy of his body, says Farm, Stock and Home, has been adapted to this fast work of digestion, and it has become necessary to keep its functions in harmony; and as long as they go forward in health the hog is the most voracious of animals. We would naturally be led to believe that he also was possessed of a powerful constitution, and would be better prepared to resist disease than almost any other creature, but exactly the contrary is the fact with the domesticated hog. This extraordinary quickness of functions becomes a serious disadvantage when disease attacks the body, because when the regular large supply of nutrition is cut down by the action of some disorder, the hog's strength quickly ebbs and his powers of resistance to disease rapidly succumb. If a serious trouble attacks the stomach or bowels, or both, he usually dies within a few hours. Pneumonia is almost certain death for him within one or two days, and he will often die from a sudden attack of acute indigestion. All this is because the functions of the hog's body have been created and maintained by extremely rapid digestion and assimilating, and they cannot endure long when the supply of nutrition is greatly reduced or entirely cut off. Here then is the primary cause of why the "hogs lie down and die so easy." The secondary cause is the close confinement in which the hog is reared, where it is furnished with all the food it can consume without any effort on its part, so that it almost wholly lacks the exercise that is necessary to the full development of animal life, if it is so to opment of animal life, if it is to enjoy sound health, and maintain and transmit a strong constitution.

In the wild state the hog spends his days laboriously. He leads a life of constant activity, which is forced upon him by his necessities. In this way he stores up muscle and nerve power and is capable of quite long endurance. This is the result of an active life, and the constant necessity of hard work to gain food, which is not made up of corn and other concentrated grains, but consists of roots, grasses, nuts, seeds and succulent plants of all sorts. Under these conditions, disease seldom visits the wild hog's abode. He either is killed by some enemy or dies of old age. Man has accepted the hog as a prime article of food. For many years he has been carefully selecting and breeding the animal with a view to secure the highest development of those qualities which are considered the most desirable. The result is that we have a hog with the smallest possible bones and the largest amount of flesh that can be made to grow. The muscular element has been almost entirely sacrificed to gain this end, and the nervous system is, in the same way, weakened to the lowest point that permits of a degree of health which will attain the highest approval on the butcher's block. By carrying out this scheme of breeding man has fallen into the evil habit of practically depriving the hog of exercise. From the time the pig is born to the hour of his slaughter, he is fed and cared for, and as he cannot be a beast of burden he is usually confined to some small enclosure, and often so constructed and in such a state of filth that it is a wonder the hogs in it survive for even a few months. All chances of exercise, such as seeking food and drink, or taking a playful run, are out of the reach of the pigs when so confined. They lead a life void of all ambition to strive for themselves, to seek for food or to do battle with an enemy. It is this lack of exercise that is a cause of the hog's inability to resist disease. This brief summary of the characteristics of the hog must surely suggest to every careful reader the importance to health that lies in treating him in all possible respects according to the requirements of his nature. Varied food, exercise, clean and well ventilated quarters, plenty of corn, avoiding sudden changes from extreme heat to cold, will reduce disease to the minimum. These things, it is true, will not prevent the spread of contagious diseases, like cholera, but they will in a large measure prevent contagions, or will aid in restricting their ravages.

HOW TO BUILD UP A DAIRY HERD.

If one wishes to build up a dairy herd from common stock and has to buy the foundation animals, I should say buy those of as good dairy type as possible, or if one already has a sufficient number of cows, start with them, says a writer. The object now is to build up a good working herd—one that will pay the largest profit possible in producing dairy products. The owner must keep this one object in view and work constantly for it, and he will find if he uses good judgment in his work that he will get higher and higher as the years go by. The first thing to do is to get a thoroughbred sire of some one of the distinctive dairy breeds—the breed he takes a fancy to, and get a good one, the female ancestors of which were the best of dairy animals and which had a sire with the best of dairy ancestry. The next thing to do is to find out which are his best cows and which are the ones that do not pay for their keeping. To do this he must feed and care for them for a year in the best manner so that they can have a chance to do their best, and during this time he must weigh and test the milk so that he can know what each cow produces for a year. It is not the cow that gives a large mess of milk for a few weeks, or even a few months, that is always the best, but it is the one that produces the greatest net profit for a year that is the best. We have to feed cows for a whole year and they pay for it with a year's product. Those that do not pay for their feed and care should be disposed of. The heifer calves should be raised from the best cows that are left. In determining which are the best cows from which to raise heifers, the performance of their female ancestors should be taken into account. For if dairy ability has been well established through a long line the more certain it is to be perpetuated. Now these heifer calves that have been selected for raising must be reared with the greatest care, for on this, in a great measure, depends the future usefulness of the cow. Remember what you are working for. It is for a dairy cow, not a beef cow. Then feed, not to fatten, but to make growth. Habits are formed when young, and if the beef or fattening habit is formed it will always cling to her. The food should be such as would be the best to produce milk in a cow. Such food will produce growth of muscle and frame.

The heifers should be bred to come in at two years of age. They should commence the business of their lives at an early age. If they should go another year without giving milk and should run in a good pasture, there would be danger of their getting too fat, and thereby being injured for dairy work. These heifers should be tested the same as the first cows were and the poorest of them rejected, and the heifer calves from the best of them raised. This process should be carried on year after year and generation after generation. All the time the cows should be fed, handled, cared for and milked in such a way as to stimulate the greatest production. It is a fact that the more milk you manage to make a cow give, the more she can give as you develop her capacity to do so, and she will transmit in some measure these improved milk-giving qualities to her offspring, so that each generation will be better than the preceding one. This is the way all the great milk producing breeds or families of cows have been built up. When building up a dairy herd one should shut his eyes to the looks of the animals, but be guided entirely by what they can produce, and have for a motto "handsome is that handsome does." This sentiment is uttered for the benefit of those who have been in the habit of admiring the blocky, smooth and symmetrical beefy form. When one has started out to grade up with some particular dairy breed he should keep on in the same line and not be changing from one breed to another. After he has worked on in this manner for a long series of years, breeding from the best performers regardless of looks, and has got a splendid herd that will produce more than twice what those he started with would, he can look around and will see his cows have all one form, although he had paid no attention to form while raising them. This is the dairy form.

APPLE KING OF THE WORLD.

A Man in Kansas Who Has 100,000 Trees in Three Counties.

Judge Wellhouse is called the apple king of the world. His orchards, in Kansas, consists of 1,630 acres, containing 100,000 apple trees, and are located in the counties of Leavenworth, Miami and Osage. In thirteen years he has picked over 400,000 bushels of apples, and whenever he has a little money to spare he buys a little more land and sets out some more apple trees. Growing apple trees is his passion, just as gambling is the passion of some men and raising fast horses the passion of others.

"I take more delight in planting apple trees and seeing them grow," said he, "than in anything else in the world." Chief precedence, as to favorite varieties, is given to Ben Davis, of which he has 630 acres; Missouri Pippin, 360 acres: Jonathan, 300 acres, and Gano, 100 acres. He being the apple king, with an experience of thirty-eight years, in Kansas, thirty of which have been spent in apple culture, his methods, from his own lips, ought to be of interest not only to all farmers but to all citizens who have any interest in the product:—

"In planting apple trees use land in as good a state of cultivation as for other crops. Make the rows north and south, thirty-two feet apart, by turning a straight plow furrow to the west and another to the east, say twenty inches from the first; the middle strip thus left is thrown out by another round with the plow, the last furrow being about ten inches deep. In the bottom of this dead furrow, running a listing plow with subsoiling attachment and then cross-marking with any device to indicate the location for the trees, sixteen feet apart in the rows, completes the preparation of the ground.

Thrifty two-year-old trees are considered best, although those a year older are not objectionable."

PETS OF INSECTS.

Every one knows that certain species of ants keep "aphides" just as men do milk cows, to supply them with the sweet liquid they secrete. Therefore it is not so astonishing to find that these marvelous little insects keep pets, which apparently of no direct benefit, seem to amuse them. The pets are generally beetles and crickets, which live on the best of terms with their hosts playing round the nests in fine weather and retiring into them on wet days. The ants have actually been watched carrying these pets of theirs from place to place during their migrations.