

## Scientific.

## India Rubber for Keeping Water Pure.

The following account of the use of India Rubber for this purpose is from the *Boston Medical and Surgical Journal*:

It occurs to us to mention a kind of discovery in regard to the preservation of water, so that it may at all times be potable, which may be of service to future travellers circumstanced as we have been in tropical regions where no water is to be found, and that important element is necessarily carried from one extreme point of country to another. On leaving Cairo to ascend the River Nile, last autumn, about 2 gallons of river water was put into an India rubber bag, securely corked and placed in the hot sun, on the deck of the boat. On reaching the first cataract—the labor of some weeks—the water was found to be excellent, there being no escape of gas on withdrawing the cork, nor any degree of odor, which was an evidence that no fermentation, or working, as the sailors term the process, had taken place. It was kept in the same exposed condition all the way down that remarkable stream, and at the end of six weeks had apparently undergone no change whatever. One week after, an expedition was started to the desert, and at the horn of a camel's saddle, water in the same bag was suspended in a travelling sack, twenty-one days, under the direct rays of the sun. From time to time, as inclination or necessity prompted, a swallow of the precious fluid was taken, and it was really delicious. Water carried in the whole skin of an animal, in the ordinary manner, for general use, became excessively offensive, in the desert, in a few days, besides assuming the color of a pale decoction of coffee. Now this is a simple statement of the difference of the quality of the water in the two receptacles; and is it not obvious that the India rubber possesses manifest advantages over the other? Whether the preservation of the water was due to the utter exclusion of atmospheric air, or the influence exerted upon it by the material itself remains to be ascertained. The peculiar turpentine smell was occasionally rather strong, under an Asiatic sun, yet the taste of turpentine was not detected.

In wooden casks another method was adopted by travellers—the changes wrought on the water in a short time are analogous to those brought about in water tanks at sea. It would be worth while to send a supply of the India rubber water bags to Cairo, Alexandria, and other starting points, if the natives had the means of purchasing them; but at the usual high prices of India rubber goods in their country, it would be literally impossible for the nomadic wanderers, who have but little money, to buy them. There is no valid reason why these articles should be so insufferably dear. A little more rivalry would perhaps bring prices to a comestible standard.

## Heat and Cold.

*The effects of cold on Wine and Vinegar—On Seeds of Fruits and Trees—On certain Vegetables—Peculiar effects on the Potato and Pumpkin—a valuable fact.*

Cold is supposed to be a negative property—the absence of heat—and the terms heat and cold are only relative, as compared with the sensations of animal heat; yet cold has some singular effects upon vegetable matter and fluid compounds. The peculiar properties of wines and vinegar, are destroyed by freezing, as are many other articles. Many of the seeds of fruit and forest trees, will not vegetate until they have undergone the action of frost, while the seeds of the locust and a variety of others, will not grow the first year they are planted, notwithstanding they are exposed to cold, unless they are scalded. All of these peculiarities may be owing to some mechanical effect, rather to any radical change on the chemical decomposition or composition of its constituents. Many vegetables may be entirely frozen, and if the temperature is raised slowly under water, or even in an airtight vessel, no change can be discovered. A singular change takes place in freezing the pumpkin. The saccharine principle is so developed, that the concentrated juice is a very fair molasses, and as such, was extensively used during the revolution. The effect of both heat and cold upon the potato is altogether the most singular, and we began this article to mention this fact.

The potato contains a great deal of body—of positive animal nutriment, composed, like the breadstuffs, of farina—starch and gluten, and a large portion of water. A potato, if

frozen, and instantly put into cold water does not recover, but is totally changed and becomes a flaccid sack of unsavory, gummy matter, of a very disagreeable odor; its original properties entirely changed and lost; but it while in the frozen state they are thrown one by one into water constantly boiling, they are in no way affected, and are as edible as when first taken from the earth. This is an anomaly in the action of cold, which may also be true when applied to other vegetables, of which we are not advised; but it is a fact worth knowing, as it may on some occasions meet the necessities of almost any family—especially in those flat countries where cellars are difficult of construction.—*Rural New Yorker.*

## Transfusing of Blood.

The French papers state that a very interesting experiment has been lately performed at the Hotel Dieu of Lyons. A female was brought into the hospital, who had been seized with violent hæmorrhage. Her condition seemed desperate. Death appeared imminent, inevitable. Doctor Delorme suggested transfusion. This was at first combated by the other physicians, as affording no chance of success, but was finally assented to, as the case being a desperate one, it could do no harm, even if it did no good. One of the young aspirants, residing in the hospital, offered to furnish the blood necessary to the operation. A syringe was immersed in warm water, and kept there till it became of a temperature a little higher than that of blood in circulation. The proper vein in the arm of the sufferer was then opened, and a fine canula or tube was introduced to some length. The other end of the tube was then fitted to the syringe, which was enveloped in warm towels, and in which was the necessary quantity of pure human blood. The operator then gently forced into the veins of the dying woman the revivifying fluid. At this moment, as she afterwards declared, she felt a great warmth spread over her body, without having the reasoning faculty strong enough to trace it to any cause. Soon after, she recovered, in a great degree, her senses and eyesight. A few hours later, a reaction manifested itself so violently, that the physicians were seriously alarmed. It seemed as if death might result as well from too much, too active vitality, as from vitality too much exhausted and enfeebled. But a calming potion soon diminished this unnatural action, and the patient has since been regularly improving. The last intelligence from Lyons states that it is now hardly possible that a relapse can occur, and that the cure may be set down as complete.

## Physiological Facts.

The average height of man and woman, at birth, is generally sixteen inches. In each of the twelve years after birth, one-twelfth is added to the stature each year. Between the ages of twelve and twenty the growth of the body is slower; and it is still further diminished after this, up to twenty-five, the period of a maximum growth. "In old age, the height of woman average of about three inches. The average weight of a male infant is about seven pounds; of a female, about six and a half pounds. The weight of an infant decreases for a few days after its birth, and it does not sensibly commence gaining until it is a week old. At the end of the first year, the child is three times as heavy as when it was born. At the age of seven years, it is twice as heavy as when a year old. The average weight of both sexes at twelve is nearly the same; after that period, females will be found to weigh less than males. The average weight of men is one hundred and thirty pounds, and of woman one hundred and twelve pounds. In the case of individuals of both sexes, under four feet four inches, females are somewhat heavier than men, and vice versa. Men attain their maximum weight at about forty and women at or near fifty. At sixty both sexes usually commence losing weight, so that the average weight of old persons, men or women, is nearly the same as at nineteen."

## Physiological Effect of Breathing Rarefied Air.

When the quantity of air received into the lungs is unduly diminished—when a rarefied atmosphere is breathed, either in a direct experiment or by those who have ascended in balloons to the higher regions of the atmosphere—we have an exactly opposite train of symptoms to those described in the former cases. The breathing is difficult, feeble, frequent, and terminates in asthmatic paroxysms. There is headache, depression of the mind,

confusion of the mind, confusion of ideas, drowsiness, want of muscular power, pains in the chest, and a tendency to fainting. The secretions are scanty, or totally suppressed, and all the powers of the individual become prostrated. Thus the bodily energies of the man rise and fall in quick response to all the variations which take place in the vital medium of respiration.

## Oxygen Removed from the Air by Breathing.

The first effect of respiration upon the air is the withdrawal of its oxygen; and as the proportion of this life-sustaining element decreases, the bodily powers become less and less active, simply from want of their proper stimulus. The natural proportion of oxygen in pure air being adapted to the most perfect performance of the animal machinery, a reduction in this amount, however slight, must be attended by a corresponding depression of the vital energies. We have seen enough of what takes place within the bodily organism to understand that the condition of health depends upon the harmonious and balanced play of opposing forces. If the equilibrium of these forces is disturbed, the vital machine goes wrong; it is an unnatural, a diseased state. A slight diminution in the proportion of respired oxygen does not produce any immediate or palpable malady, but it certainly disorders the natural, healthful operations of the system to a greater or less extent, and thus lays it open to the assaults of disease. It undoubtedly prepares the soil, and sows the seed, which in due time, springs up into that luxuriant harvest of ailments and complaints which is reaped by the victims of modern refinement and civilization.

## The Farm.

## What is Manure?

Any substance which restores the elements of fertility to the soil may be termed a manure, and in the language of Prof. Norton, "may be divided into two classes—organic and inorganic; organic when derived from the remains of organized beings, as plants and animals; inorganic, when produced from the mineral kingdom. Vegetable differs much in its action from animal matter. Green vegetables, when deprived of vitality, rapidly decay; their great succulency promotes this when assisted by air, facilitated no doubt by the azotised matters of the sap, which impart the putrefactive tendency, reducing the fibrous organism to carbonic acid, water, and ammonia; at the same time liberating its earthy and saline ingredients. Dry vegetables decay slowly—the sap being dried up is less inclined to petrify; but how soon it commences when moistened or mixed with animal matters, as when straw is employed as litter! Peat is a vegetable manure in which decomposition is checked, not only by antiseptic matters, but chiefly by excessive moisture, and the consequent exclusion of air. Yet, when dried, and mixed with animal manures or caustic lime, how speedily it moulders down! The principal supply of vegetables for manure is derived from the leaves and stems of grain crops, grasses, the collection of weeds, the consumption of green crops, and, in some cases, of the seeds of plants. Seeds of plants are not directly used as manures, being too valuable as an article of food. Seeds contain the richest elements for fertilization—the phosphates and nitrogenous products; hence the rich manure obtained from cattle fed on oilcake of Linseed grain. The refuse of some seeds is used for manure, as barn, rape-cake, malt-dust, &c."—Green vegetables are sometimes used as a cheap method of fertilizing the soil, either upon which they grow, or by removing them to another field.

In this country, the principal green crop used for manure is clover. The waste of substances which would form valuable manure, if saved and composted, upon many farms, and by saving, economical farmers, too, would make them open their eyes with astonishment if they could only see the truth. We know many a careful, yet stingy New England farmer, who has all his life time snuffed the tainted air of the privy, which has diffused its fertilizing gases abroad upon the air, instead of applying its substance as a manure upon his growing crops.

How many of you, my readers, at this moment are complaining of short crops, and yet have piles of stable manure lying exposed to the bleaching effects of winter rain, or under the evaporating power of a scorching sun! How many of you have a barrel of ground

plaster standing in your stable, with which you daily sprinkle the floor, and thus absorb the ammonia which is so offensive, and would otherwise escape and be lost? That old greasy coat, hat, and boots, which I saw last week disfiguring the landscape near your house, where they have dangled as a scare-crow ever since last spring, would make more corn than they saved, if you had used them as a manure. For the same purpose, we beg of you to save the blood and bristles of your butchering—it is a valuable manure.

Finally, bear in mind that almost every organic substance is capable of being converted into manure, and increasing the productions of the earth for the benefit of the whole human family.

## Poultry Houses near Horse Stables.

I noticed in a late number of the *Rural*, in an article from the *German Town Telegraph*, that a writer recommends building hen houses behind, or adjoining horse stables, in order that the manure might be thrown in for the fowls to scratch and work over.

Now, so far as throwing in the manure is concerned, I agree with the writer, but if farmers or fowl fanciers wish to rid themselves or their horses of an almost everlasting pest, by all means let them keep their hen roosts away from behind or adjoining the horses stable. I can speak from experience in this matter; and there are those about here of my acquaintance, who can bear testimony to what I have stated. Yes keep your hen houses a proper distance from your horse stables. And for the benefit of those who desire it, I will briefly give my reasons for making the statement.

During the early part of my keeping fowls, I had their roosting place adjoining the stall where I kept my horse, with a partition between. I think it was the second year after I kept my hens in this manner, that I discovered there was something the matter with my horse. He showed a disposition to rub and bite himself, but for a long time I paid little regard to it, thinking he would soon get over it; but it seemed to increase upon him. I could fit up no stall or partition of sufficient strength to resist his efforts. I could leave him no where unhitched, and if I hitched him he would soon break loose, and get to some place where he could rub. For six months or more, he continued in this manner, before I ascertained what ailed him. I tried various remedies for humors in the blood; bled him copiously—drenched him with physic till he could hardly stand, and all to no effect. He was a large and valuable horse commonly, but at this stage of matters he was truly a sight to behold. He was minus his mane, and was in nearly the same condition with his tail—his sides lacerated and naked in consequence of his continual rubbing and biting. At last the thought struck me that the animal might be lousy—and on close examination, I found he was literally covered with small hen lice, and they adhered so closely to the skin, that it was almost impossible to comb out one with a fine comb. I now changed my course of doctoring, and by dint of perseverance—by the application of various remedies for the cure of lice; in the course of six or eight weeks. I succeeded in effecting a perfect and lasting cure.

The first thing I did after this was to remove my hen roost, and scald and whitewash my horse stable. I have not been troubled with hen lice getting on my horse since. I have heard of similar cases where horses have been afflicted in the same way; hence I conceive it to be the safest way not to build a hen house behind the horse stable.

If it should so happen that this article fall under the eye of any one who has a horse that has become lousy from the same cause, I shall be happy to inform him how they may be destroyed.—*Rural New Yorker.*

It is said the man who first introduced a fanning mill into Scotland was denounced as an atheist, for getting up a gale of wind when Providence intended a calm. It is also said that the man who first introduced steam, into boats as a propelling power, was looked upon as a fit subject for an asylum.

Buy what you do not want, and you will sell what you cannot spare.

The master's eye makes the horse fat.

Gossiping and lying go hand-in-hand.

He who remains in the mill grinds, not he who goes and comes.